### INTERNATIONAL SCIENTIFIC CONFERENCE "ARCHIBALD REISS DAYS" BOOK OF ABSTRACTS



#### XII INTERNATIONAL SCIENTIFIC CONFERENCE

#### "ARCHIBALD REISS DAYS"

Belgrade, 8-9 November 2022

**BOOK OF ABSTRACTS** 

#### **Publisher**

UNIVERSITY OF CRIMINAL INVESTIGATION AND POLICE STUDIES Belgrade, 196 Cara Dušana Street (Zemun)

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MILOŠ IVOVIĆ JOVAN PAVLOVIĆ

#### **Impression**

150 copies

#### Printed by

Birograf Comp, Belgrade

The conference and the publishing of proceedings were supported by the Ministry of Science, Technological Development and Inovations of the Republic of Serbia.

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ISBN 978-86-7020-485-0 ISBN 978-86-7020-190-3

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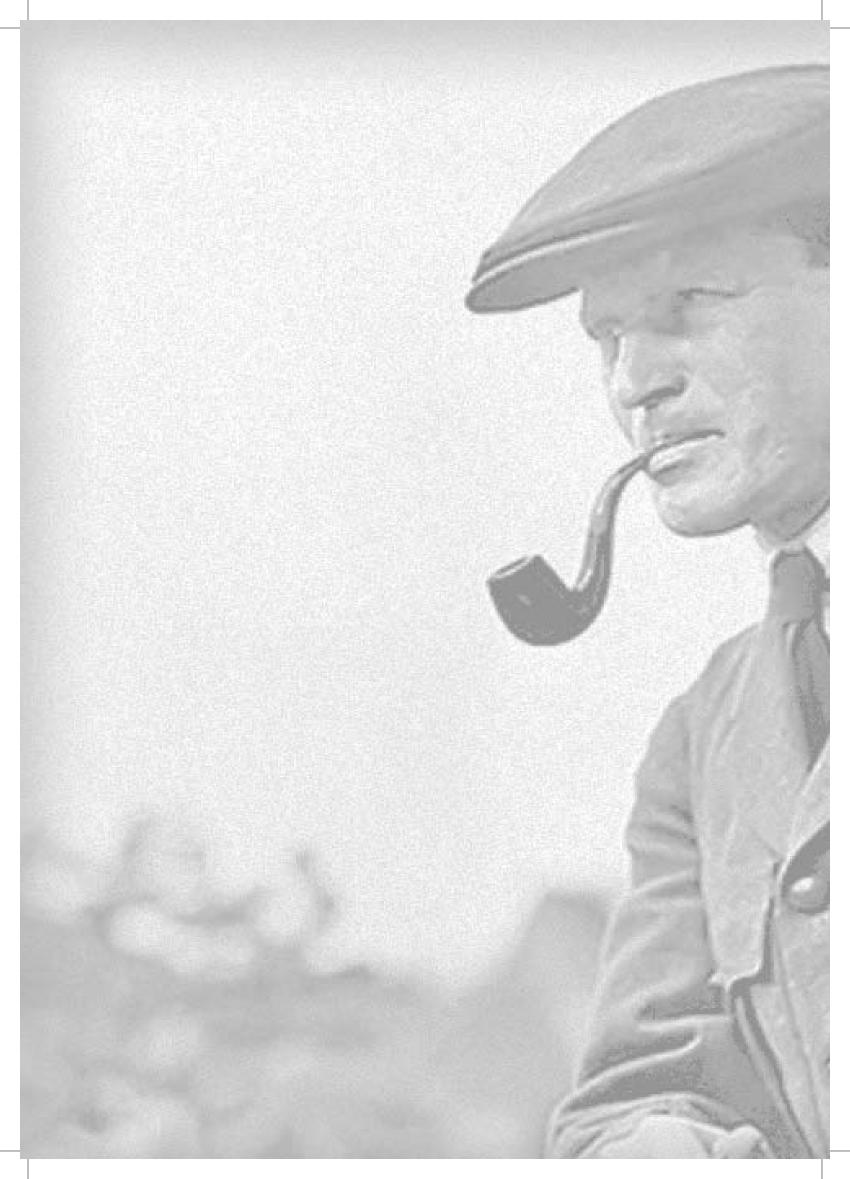


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## PROVIDING EVIDENCE IN CRIMINAL INVESTIGATIONS AND FUTURE DIRECTIONS OF FORENSICS DEVELOPMENT IN EUROPE

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**Purpose:** The purpose of this paper is to present the basic directions of developing of forensic sciences and its applications in providing evidence in criminal investigations in Europe until 2030.

**Design/Methods/Approach:** This paper is based on the application of current theoretical approach as well as lesson learned from the practical work of authors of this paper in the field of criminalistics, criminal procedural law and forensic sciences.

**Findings:** The authors deal with the issue of improving the work with evidence in criminal investigations. In this regard, it starts from the *European Network of Forensic Science Institutes* (*ENFSI*) vision document entitled "Improving the Reliability and Validity of Forensic Science and Fostering the Implementation of Emerging Technologies" which represents a position statement providing a European direction and promoting research, development and innovation for forensic science for European Forensic Science Area 2030. Analyzing the basic determinants of this document in the vision, the authors try to indicate how the defined directions of development of forensic sciences in Europe by 2030 will affect the work with evidence in criminal investigations.

**Originality/Value:** This paper is the result of the authors' joint research and critical analysis of the vision document of the European Network of Forensic Science Institutes (ENFSI) for the European Forensic Science Area 2030, in which the determinants of this document are related to the work with evidence in criminal investigations.

**Keywords:** evidence, criminal investigations, forensic sciences, ENFSI, improvement.



#### About the authors

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## HISTORICAL DEVELOPMENT OF THE POLYGRAPH - APPLICATION OF THE POLYGRAPH IN HUNGARY, STATE AND PERSPECTIVE

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**Purpose:** This paper aims to show the role of the polygraph in detection and evidence. The paper focuses on applying the polygraph in Hungary and takes into account foreign practices. The paper will show the advantages and limitations of the method and how it has evolved over the last 100 years.

**Design/Methods/Approach:** The paper will primarily review domestic and foreign literature and analyze domestic legal norms. It also illustrates the experience of using polygraphs through case studies.

**Findings**: John Larson (USA) first used the modern three-channel polygraph in 1921 in the United States of America. Over the last 100 years, the instrument and the testing methodology have undergone significant changes. The instrument was first used in Hungarian criminal cases in 1978. Initially, the polygraph oriented the investigation, and the test results were not included in the investigation file. Later on, the polygraph test results became part of the investigation file, and there were also court judgments that referred to the polygraph test results as evidence. Nowadays, polygraph examinations are not used as evidence in Hungarian court practice, but there are efforts to make the results of polygraph examinations evidence. The paper wants to demonstrate that it is sufficient for the polygraph to orient the investigation.

**Originality/Value:** The paper can help illustrate the development of the polygraph, its role in each stage of criminal proceedings and the limitations of the method.

**Keywords:** polygraph, lie detection, evidence, criminal procedure, investigation

#### About the author

**Árpád Budaházi**, PhD, Police major, works as an associate professor at the Department of Criminal Procedure of the Faculty of Law Enforcement, University of Public Service, Budapest, Hungary. He has been researching polygraph for 15 years.



### MANAGEMENT IN THE PREVENTION OF MALPRACTICE IN ELECTRONIC REFEREEING SYSTEMS IN SPORTS

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**Purpose:** Technologically advanced systems for electronic refereeing decisions in sport have a major use and impact on the game in the 21st century. The purpose of this paper is to discover potential malpractice in the use of these electronic systems, mark the points of potential malpractice and give recommendations on lowering the damage done by tampering the results. The general public, especially TV spectators, players and observers are served with a final, electronic decision on an important moment in a sports game: They have to accept it as the only and ultimate referee call. By the way the results are presented, graphically and orally, there is no way they can doubt or change the decision. The electronic decision has been made. But, is this what really happened in the game?

**Design/Methods/Approach:** This scientific paper describes a unique approach in the management and prevention of intentional and unintentional human made errors in the process, with stated technical errors, psychological approach, existing solutions review, given examples and analysis. The authors described a developed, original *3D* system used in tennis.

**Findings:** The authors of this paper found the weak points in the electronic system, which can easily be used to manipulate and tamper the results. Malpractice is highly possible to occur in various steps of the electronic referee process.

**Originality/Value:** This research paper explains the weak points of the system convenient to fraud to the general public, especially the spectators and TV audience that is not covered in the world media. Recommendations are given to minimize the possibility of malpractice. The authors proposed a new, original management algorithm and a malpractice prevention model.

Keywords: management, sport, 3D electronic referee systems, E-fraud, malpractice.

#### About the authors

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## THE POSSIBILITIES OF USING UNMANNED AERIAL VEHICLES – DRONES IN CRIME SCENE INVESTIGATION

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**Purpose:** The progress of science and technology opens up many possibilities for the application of modern devices in various fields, including crime scene investigation. New technologies are usually used first for military purposes and later for civilian purposes. The paper will consider the possibilities of applying new technologies in crime scene investigation, special unmanned aerial vehicles, the so-called drones. Namely, many crime scenes can be inaccessible or even dangerous for crime scene investigation, such as in cases of setting up explosive devices, when it may be uncertain whether there is a danger of new explosions. In these and similar situations, devices such as drones could be useful. The aim of the paper is to examine the factual and legal possibilities of using modern devices such as unmanned aerial vehicles in crime scene investigation for safe work and to simplify the crime scene investigation in situations dangerous to the investigation team. The technical characteristics of unmanned aerial vehicles and the normative framework for their use by the police will be analysed.

**Design/Methods/Approach:** The paper will consider the possibilities of applying new technologies in crime scene investigation, special unmanned aerial vehicles. The following research methods will be applied in the paper: description, analysis, dogmatic law, and comparative law method.

**Findings:** First of all, the technical characteristics and possibilities of using unmanned aerial vehicles for these purposes will be analysed, with the analysis of potential problems in the application. Also, based on the analysis of national and comparative legislation, we will point out the best normative solutions in this field.

**Originality/Value:** The paper will analyse the possibilities of using unmanned aerial vehicles in crime scene investigation given that they are not routinely used for these purposes in police practice.

**Keywords:** unmanned aerial vehicle, crime scene investigation, aerial photography, normative framework.



#### About the authors

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#### PHOTOGRAPHY AND ITS IMPORTANCE IN CRIMINALISTICS

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**Purpose:** In the presented study, the authors try to analyze some of the basic factors that influenced the current state and development of criminalistic photography and the use of photography in the criminalistics.

**Design/Methods/Approach:** The uthors present some contexts of the state and development of criminalistic photography methods. They first address photography as one of the methods and later a branch in criminalistics. They also indicate the applicability of the knowledge of criminalistics photography, but also the basic concepts, purpose and content of criminalistic photography.

**Findings :** The concept of criminalistic photography as a research method and its content are currently frequently presented very broadly and confused with the documentary value and meaning of photography. For this reason, distinguishing between documentary and scientific criminalistics and forensic photography will be necessary in the future.

**Originality/Value:** This study's basic information is based on the long-term research task "9/2008 – Methods and procedures of work at the crime scene". The classification of documentation as a component of criminalistics knowledge, in particular, is presented as a novel approach to the historical concept in criminalistics photography.

**Keywords:** photography, criminalistic and forensic photography, technical value of photography, scientific value of photography, documentary value of photography, photographic record.

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## UNDERCOVER AGENT – POSSIBLE PROBLEMS IN PRACTICE AND A REVIEW OF THE CASE-LAW OF THE EUROPEAN COURT OF HUMAN RIGHTS

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**Purpose:** The main purpose of the paper is to identify relevant standards that could improve the future application of the institution of undercover investigators in Serbia and to harmonize the practice in Serbia with the state of the art in this field.

**Design/Methods/Approach:** The normative-dogmatic and comparative methods were applied, along with the synthetic-analytical approach to the research.

**Findings:** By analyzing some of the most significant cases from the case-law of the European Court, the authors have come to a finding that this institution actually allows the rights of the accused to be significantly restricted through the use of the institution of undercover agents. Also, one of the crucial findings coming from the analysis of Serbian regulation is that it is mainly in accordance with modern and relevant standards.

**Originality/Value:** The chosen topic is usually studied from a comparative legal point of view by analyzing specific laws, and the insight into significant cases from the case-law of one of the most important international institutions opens up certain new perspectives on the observed issues.

**Keywords:** undercover agent, criminal proceedings, European Court of Human Rights, Criminal Procedure Code.

#### About the authors

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## FINANCIAL INVESTIGATIONS AND CONFISCATION OF PROPERTY AND OTHER PROCEEDS OF CRIME IN THE REPUBLIC OF NORTH MACEDONIA

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**Purpose:** The purpose of this paper is to analyze the international regulations and the Macedonian national legislation that refer to financial investigations and their efficiency and effectiveness for the confiscation of property and other proceeds of crime. In recent years, the Republic of North Macedonia has been intensively committed to the implementation of international regulations and harmonization of national legislation in order to conduct financial investigations in parallel with criminal investigations in order to find, secure, seize, and confiscate criminal proceeds and property and prevent crime. The normative analysis refers to the legal provisions for conducting financial investigations, competencies, measures, and actions and the provisions for confiscation, immediate and extended confiscation. The analysis of the reports of the competent institutions points in the direction of efficiency and effectiveness of the financial investigations in the function of confiscation of property and other criminal proceeds in the period from 2017 to 2021.

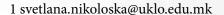
#### Design/methodology/approach

The text will be systematized as follows: analysis of significant international legal acts and their recommendations regarding financial investigations and confiscation of property; defining the concept and procedure of financial investigations; concepts, measures, and actions in financial investigations; analysis of financial investigation data and realization of confiscation of properties and commenting on their effectiveness and efficiency.

**Findings:** Financial investigations are necessary to find, secure, seize, and facilitate the confiscation of property and other proceeds of crime that prevent criminals from "disposing of" illicitly acquired wealth. In order to enable efficient and effective confiscation, it is necessary to launch a timely financial investigation in parallel with the criminal investigation in order to prevent criminals from alienating or transferring their property and other proceeds of crime to "safe places" beyond the reach of law enforcement. For criminals, especially in the area of organized crime, it is said that they are not afraid of imprisonment, they are more afraid for "their illegal wealth" and therefore find ways, methods, and techniques to "secure illegal wealth" and allow it to be used. on "corruption and influence of the judiciary in the area of judgment". Although financial investigations are intensifying, confiscation of property and other proceeds of crime is still considered insignificant, especially in the area of extended confiscation.

**Originality / Value:** The paper is an original work based on its own theoretical studies, analysis, and presentation of research results obtained by analyzing data on financial investigations and realized confiscations for the research period in the Republic of North Macedonia.

**Keywords:** financial investigations, confiscation of property, proceeds of crime, efficiency, effectiveness.





#### About the author

Svetlana Nikoloska, PhD, is a full professor at the Faculty of Security in Skopje, with a professional and scientific career of over 30 years as an employee of the Ministry of Interior in the period from 1992 to 2008 in several positions, especially in the field of criminal police for organized crime. Since 2008 she has been a full-time employee of the Faculty of Security in Skopje at the Department of Criminal Sciences, appointed for the field of Criminal Tactics and Methodology with specialization in the methodologies of classic crime research, economic crime, computer crime, and money laundering. In the period 2015–2019 she was Vice-Rector for Finance at the University of St. Kliment Ohridski in Bitola. She participated in several international scientific and professional conferences, is the author of several textbooks, manuals and scientific and professional papers published in national and international journals, some of them influential. She also participates in preparation of several laws and bylaws, but also participates in the work of several working groups and commissions, as well as several projects, especially in the area of research of financial investigations, money laundering and the like.



### THE ONLINE DRUG MARKET AS A CURRENT LAW ENFORCEMENT CHALLENGE

#### Vince Vári, PhD

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**Purpose:** The study examines the impact of the COVID-19 pandemic on the online drug market. It shows that law enforcement in Hungary and around the world has not been adequately prepared to deal with and prosecute the onlineisation of drug trafficking. Law enforcement has faced legal, organizational, and professional obstacles. The key is to identify the nature of these obstacles and plan possible effective responses. This is taken primarily from a criminal procedure perspective.

**Methods:** Given the research objectives, the study will primarily review domestic and foreign literature and analyze domestic legal norms. It is also based on statistical data and research findings from international organizations. In particular, the anomalies related to the principle of "ex officio" and the shortcomings in the legal regulation of parcel services and darknet cryptocurrencies will be analyzed. The analytical and systemic analysis highlights the difficulties in prosecuting online drug trafficking.

**Findings**. In the early stages of the pandemic, disruptions in the drug supply chain were a significant price driver. The drug market, opening up to cybercrime and exploiting its potential for its own ends, shifted part of its distribution system to delivery by mail order services with less regulated trade. Bulk drug orders are placed in so-called encrypted chat rooms on the darknet and other online platforms in the online drug market. The delivery services do not record customer data, and payment methods are not documented by the supplier due to the use of cryptocurrencies or cash payments and are therefore untraceable. Investigating authorities must have several legal and organizational options to avoid investigating drug offenses that would otherwise be on the demand side. The Achilles' heel would be to relax the strict principles of "legality" and "ex officio". The legislative change could also improve the effectiveness of detection and evidence by introducing stricter regulation of the activities of courier services.

Value: The results could be helpful for policymakers, crime prevention practitioners, and police management. The study has the potential to inform the broader scientific community about the complex dangers of online drug trafficking. The study can be an essential starting point for further research into new phenomena of drug crime, particularly to achieve effective law enforcement solutions to online drug trafficking. The paper also points out that the changed circumstances call for new legal and forensic recommendations.

Keywords: COVID-19 pandemic, drug market, darknet, drug market, principle of legality.

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#### About the author

**Vince Vári**, PhD, is a police lieutenant colonel and associate professor at the Public Service University in Budapest (Hungary). He is a researcher and university lecturer. His research topics include the effectiveness of the police, indicators of organizational and individual performance measurement, and the possibilities of speeding up criminal proceedings. He successfully obtained his PhD in 2016. He publishes continuously and takes on various scientific and professional public roles in multiple projects.



## THE NECESSITY OF CRIMINAL CONTROL OF FOREIGN FIGHTERS

#### Zoran Đurđević, PhD

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#### Gojko Šetka, PhD

Faculty of Security Studies, University of Banja Luka, Bosnia and Herzegovina

**Purpose:** Analysis of the necessity of implementing criminal control of foreign fighters for the purpose of improving security and preventing crimes, including terrorism.

**Design/Methods/Approach**: In the absence of publicly available data on whether criminal control is being implemented, this research used structured interviews with prosecutors, heads of police and security bodies, scientific and educational professionals, and experts in combating terrorism, who deal with institutional cooperation, strategic issues and strategic planning related to terrorism, as well as police officers dealing with the control of terrorism in Bosnia and Herzegovina. The research focuses on the methods by which state institutions implement criminal control over foreign fighters who have remained in these regions following the conflict in Bosnia and Herzegovina, as well as Bosnian and Herzegovinian nationals who returned from the front lines, primarily from Syria and Iraq. The collected data underwent statistical analysis before being displayed in tables.

**Findings:** There is room for improvement of the quality of organization and implementation of criminal control, since not all registered foreign fighters are subjected to it. Systematic, organized criminal control is required if we are to increase security, that is, lower risks and, through preventative measures, prevent crimes that may be planned and carried out by foreign fighters, including foreign terrorist fighters. The identification of methods to improve the application of criminal control is a sign of its practical value. The theoretical relevance is reflected in the potential for comparative analysis of the outcomes of this research with those of subsequent ones.

**Originality/Value**: The paper presents the analysis and results of one of the few researches in the Western Balkans, which demonstrate the necessity of establishing criminal control of foreign terrorist fighters.

**Keywords:** criminal control, foreign fighters, foreign terrorist fighters, radicalization, terrorism.



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**Predrag Popović**, PhD, is an assistant professor for the scientific subfield of Criminalistics, Tactics, Methodology and Operations at the University of Banja Luka, Faculty of Security Sciences, with 15 years of experience. His special areas of interest include: terrorism, radicalism, methodology for discovering, clarifying and proving blood and property crimes, criminal profiling. He is the author of numerous scientific articles. He participated in scientific research projects with the support of the Ministry of Education and Culture of the Republic of Srpska, the Ministry of Internal Affairs of the Republic of Srpska and relevant domestic and international institutions and funds. Hi is a secretary of the Journal for Security and Criminalistics.

**Gojko Šetka**, PhD, works at the University of Banja Luka, Faculty of Security Sciences, with 15 years of experience. He participated in various research projects with the support of the Ministry of Education and Culture of the Republic of Srpska, the Ministry of Internal Affairs of the Republic of Srpska and relevant domestic and international institutions and funds.



## USE OF FORCE BY THE POLICE IN SERBIA AND CROATIA: STATE AND TENDENCIES

**Branko Leštanin, MSc**Ministry of Interior of the Republic of Serbia

#### Željko Nikač, PhD

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**Purpose:** The paper was written first of all in order see the differences and similarities in the legal regulations of the use of force (use of coercive means) by the police in Serbia and Croatia. In addition, it is important to look at the state and tendencies of the use of force by the police in order to get the answers to the questions such as the number of cases of unlawfully used force, its share in the total force used, which state is more repressive, etc.?

**Design/Methods/Approach:** The authors use the normative method to analyse the legal norms that regulate the use of coercive means (use of force by the police) in the observed countries. The method includes the analysis of the content of documents containing statistical indicators on the use of coercive means for the period 2016-2020, the data in this area were collected and processed. Then, the analysis was performed in spatial and temporal frames, and by the method of synthesis and on the basis of the performed analyses.

**Findings:** Although coercive means are an 'attack' on the most basic rights of citizens (the right to life and the right to bodily integrity), coercive means remain the most effective means of combating the most extreme forms of endangering the legal order of a state. This especially refers to the fight against crime and the maintenance of stable public order and peace. Only for the needs of this research and from its results, we conclude that Serbia is more repressive than Croatia.

**Originality/Value:** Consideration of the situation and tendencies of the use of force by the police is important from the aspect of the introduction of new legal, technical and tactical methods in the use of force. It is also important from the aspect of exercising human and minority freedoms and the rights of man and citizen. The criminological aspect should not be neglected either, because the police are one of the bodies of formal social control of crime.

Keywords: coercive means (use of force), Serbia, Croatia, Police Law.



#### About the authors

**Željko Nikač,** PhD, graduated from the Faculty of Law in Belgrade. He completed specialist training for criminal investigation operations, a special human rights course for members of the police, and was repeatedly praised and awarded for the achieved results. At the beginning of 2010, he was permanently employed at the Academy of Criminalistic and Police Studies. He was Vice-Dean for Science (2009–2012), and now a full professor at the University of Criminal Investigation and Police Studies. He was an external associate of the Committee for War Crimes of the Federal Government (1996–1998) and a member of several professional associations. He is the author of several scientific research papers, was involved in several scientific projects, and was a member of the editorial boards of several scientific journals. He is the author of several collections of regulations and monographs, and participated in several scientific and professional conferences with international participation.

Branko Leštanin, MSc, graduated from the Police Academy in Belgrade and the Program on Terrorism and Security Studies at the George Marshall European Center for Security Studies in Garmischparten-kirchen, Germany. After graduating from school in 2002, he worked in various positions in the Ministry of Interior, which included leadership and management in the police. He currently works as an officer for the supervision of private security in the Kraljevo Police Department. He was awarded by the Minister of Interior in 2005 for outstanding results in the field of security. He is the author of several papers published in theoretical and professional journals in the field of security and (criminal) law, as well as four books.



### VIRTUAL TEAM LEADERSHIP – SPECIAL CHALLENGES FOR MANAGERS

#### Christian Schwöder, MSc1

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**Purpose:** The paper was written to help virtual team leaders manage workers working from home. It explored what can happen if the classic leadership style for present teams is not adapted and how this can affect team's productivity, trust, and motivation.

**Design/methods/approaches:** A qualitative content analysis of guideline-based expert interviews was conducted. For this purpose, leadership experts in the examined authority were interviewed in order to ascertain the current status. In the second stage, management trainers who specialise in the leadership of virtual teams were interviewed.

Findings: "Virtual working is more and more perceived as a way to build a bridge between the demands of new employees and the needs of the organisation. Through a more flexible design, not only new employees can be gained, but also employees who were forced to reduce their presence at work due to family situations can be integrated more flexibly. In this way, their wealth of experience can continue to serve as a resource for the organisation." An uneven distribution of the task load leads to a spiral of de-motivation on both sides. High-performing employees receive exposed assignments and can thus reach or exceed the limit of overstrain, while average or lower-performing employees are not the focus of the manager, do not receive relevant work assignments and are thus underchallenged, or do not receive supportive attention. Those who are not given the opportunity to use their abilities in the long run are more quickly underestimated and lose motivation due to a lack of meaning within the work. "If the established work and communication concepts continue to be adhered to, which do not take into account the additional communication requirements, the motivation of the employees will decrease and the commitment will diminish, which will lead to a loss of performance in the medium term". "According to the assessment here, the 'new normal' will be a hybrid of virtual and analogue work. But even within hybrid leadership, it is necessary to adapt leadership performance in order to use this model successfully without losses. Those who think that only some employees do mobile work, and not on a regular basis, and that therefore a change in leadership is not necessary, are mistaken. Adaptation is also necessary in the context of hybrid leadership. Failure to do so could result in the effect of elite formation. This means that high-performing employees and those who want to be perceived as high-performing will not perform their duties virtually against the background of better visibility, since they can more easily get in touch with the manager in the office. If, within the framework of delegation, the distribution of relevant assignments is primarily assigned to these employees, this could lead to a negative pull effect or build up a pressure that also causes the other employees to refrain from working virtually if possible, as this could have negative effects on their own careers. Mobile working must not become the 'second choice' because presence cannot be represented for various reasons. Such a development could counteract the original objective of this instrument and make it unattractive for the broad workforce."



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Originality/value: A research like this has not been conducted during the Corona pandemic, and will help managers to review and adapt their management style to the new circumstances. **Keywords:** virtual teams, leadership, dislocated, motivation, trust, hybrid leadership, home office.

#### About the author

**Christian Schwöder,** MSc, has worked in a security agency for 18 years. There he did investigative work in the field of white-collar crime and he was on the staff of various departments for 6 years. In the course of his promotion to the management level of the security agency, he dealt with the topic of leadership. At that time, the Corona pandemic was raging in Germany, so that the leadership of employees in the home office became particularly important.



### MODERN PRINCIPLES OF POLICE MANAGEMENT IN COMBATING CRIME

#### Dalibor Kekić, PhD1

University of Criminal Investigation and Police Studies, Belgrade, Serbia

#### Miloš Milenković, MSc

Sector for Emergency Management, Ministry of Interior, Republic of Serbia

**Purpose:** The police management principles are a set of rules based on legally, theoretically, and empirically confirmed views, the application of which is assumed in the practical work of police managers and managerial bodies in the police organization. The main goal of this paper is to highlight modern police management principles and how they can serve as a starting point for police managers' decision-making, help them predict that their decisions will be valid, and shorten decision-making time in the fight against crime, particularly in recurring situations.

**Design/Methods/Approach:** This paper is the report, and it will indicate the benefits and weaknesses of this police management approach based on practical experience and research by presenting different literature views relating to modern principles of police management in combating crime.

**Findings :** Modern principles of police management include: legality and ethics, effectiveness and efficiency, unity of diversity, complementarity of goals, delegation of authority, orders, control, etc. Some specific principles are only mentioned and not explained in depth in this manuscript. Certain work principles of a police organization are sometimes established by law. For example, the Law on Police stipulates that the performance of police work is based on the principles of professionalism, depoliticization, cooperation, economy and efficiency, legality in work and proportionality in the application of police powers.

**Originality/Value:** The primary findings of the paper will focus on the positive aspects of using modern police management principles in combating crime, particularly in the decision-making process. Furthermore, the paper discusses the failure to apply modern police management principles in combating crime, as well as the consequences of such situations.

**Keywords:** police, crime, principles, organization.

#### About the authors

**Dalibor Kekić**, PhD, is an associate professor at the University of Criminal Investigation and Police Studies, Belgrade, whose scientific sub-field is Police Management. He has published dozens of scientific papers, especially in the field of police sciences. His fields of interest also include emergency situations, especially in relation to the participation of the police.

**Miloš Milenković**, MSc, is a chief of section in the Sector for Emergency Management of the Ministry of interior, Belgrade, Republic of Serbia, whose scientific sub-field is Emergency Management. He is the author and co-author of several scientific papers, especially in the area of emergency management. He is also interested in police management.

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#### INTERNATIONAL POLICE COOPERATION

#### Ivana Luknar, PhD

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#### Ilija Životić, PhD

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**Purpose:** Internationalization of police cooperation was found to build up police cooperation and network. Purpose of the paper is to initiate debate on this topic.

**Design/Methods/Approach:** Motivated by the long-standing cooperation between police on international level, this article offers an analysis of the police networks, international interaction and cooperation. Method, the qualitative analysis is the core of this article. Based on *fair policing from the inside out framework*, this study explored the interaction order within the police agencies and how mechanism functions for maintaining police operations.

**Findings:** Data for this study were drawn from voluminous materials: literature, research, books, documents, etc. Findings may serve as an incentive for evaluation and improvement of the existing international police mechanism.

**Originality/Value:** This study advances the existing literature in several ways. First, we map crucial international procedures, agreements and external procedural justice. Second, we formulate a coherent explanation of international police cooperation framework.

Keywords: police, police network, international cooperation, international police mechanism.

#### About the authors

**Ivana Luknar,** PhD, is a sociologist, and holds a PhD degree in Political Sciences. She is an Research Associate at the Institute for Political Studies in Belgrade. She was part of various research projects and conferences, and was a professor at the College of Vocational Studies, teaching *Criminology* and *Security* in Niš. She is the author of the "Cyberterrorism Countermeasures and Prevention" and many articles.

**Ilija Životić**, PhD, is a Member of Parliament, and member of the Security Services Control Committee of the National Assembly of the Republic of Serbia. He is an Assistant Professor for the scientific field of security at the Faculty of Engineering Management in Belgrade. He is the author of 50 scientific papers and participated in 20 international conferences in the field of security.

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## THE INFLUENCE OF THE IDEAS OF CIVIL REVOLUTIONS ON THE ESTABLISHMENT THE MODERN POLICE IN SERBIA

#### Radomir Zekavica, PhD

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#### Ivana Krstić Mistridželović, PhD1

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**Purpose**: The main goal of this paper is to answer the question of whether and to what extent the ideas of civil revolutions had an impact on the emergence and development of the Serbian police. The analysis of internal socio-political circumstances and key solutions of foreign models that were implemented in Serbia in the 1960s will determine the measure of the influence of Western European tradition on the origin and development of the Serbian police.

Methods: The analysis is based on secondary sources and literature review

Findings: The civil revolutions that engulfed Europe in the period of the late 17th (England) and the end of the 18th (France) centuries were a key turning point in the development of European societies. The process of social reconstruction that began with these revolutions was based on the ideas of the Enlightenment – the ideas of freedom, equality, pople's sovereignty, the principle of separation of powers and limiting the state power by laws based in sense and natural law. With the Serbian Revolution of 1804, the process of constituting of the modern Serbian state began, including its police institutions that were under influence of the internal circumstances and the foreign ideas and traditions as well. Until the end of the existence of Serbian independent state the Police Decree of 1850, the Criminal Code of 1860 and the Law on organization of the Central State Administration of 1862 will remain the foundations of the organization and functioning of its police.

**Originality**: The original value of this work is reflected in the intention to find out a primary ideological influence on the formation of the police in 19th century Serbia.

Keywords: police, Enlightenment, ideas.

#### About the authors

**Radomir Zekavica,** PhD, is a full professor at the University of Criminal Investigation and Police Studies in Belgrade. He teaches several courses at the primary and master level: Introduction to Law (primary level), Human Rights (primary level), Police and Human Rights (master). He is the author of several books and works in the field of theory of state and law, human rights and history of the police.

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## THE INTERNATIONAL LEGAL FRAMEWORK AGAINST CORRUPTION

#### Duško Dimitrijević, PhD

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**Purpose:** The purpose of this paper is to analyze some of the most important international legal instruments governing the fight against corruption. The existing international legal framework includes international and regional agreements and other legal acts adopted under the auspices of the United Nations, the European Union, the Council of Europe, the Organization for Economic Cooperation and Development, the Organization of American States, the African Union and other important international organizations.

**Design/Methods/Approach:** Using the comparative, normative, teleological and linguistic method, the author analyzes the main provisions of international legal instruments concerning the use of common terms and definitions of corruption, its prohibition and incrimination, jurisdiction of judicial bodies, determination of legal responsibility, sanctions, monitoring of preventive and other measures, all in order to get a more realistic picture of the functional relationship that exists between the various legal regimes that regulate corruption in the international legal field as one of the most problematic forms of crime in the contemporary world.

Findings: The paper finds that there are certain differences between international legal instruments that regulate corruption offenses. This knowledge may be important for further harmonization of the international legal framework on the fight against corruption. This finding can be useful for the consistent incorporation of international anti-corruption standards into national legislation, in order to avoid situations where corrupt acts are treated unequally due to the application of different legal standards at the national level, which may be crucial for their incrimination and punishment especially when corruption acquires transnational characteristics. Thus, for example, by implementing the standards present in the OECD Anti-Bribery Convention, States can opt for a much narrower approach that calls exclusively for the incrimination of so-called "active bribery". On the other hand, if States implement standards from some other international legal instruments, such as the Criminal Law Convention on Corruption of the Council of Europe, then States will sanction a number of different corrupt activities with their internal legislation. Considering that in modern conditions, corrupt activities are taking more and more forms of transnational organized crime, according to the authors, only institutionalized mechanisms of international police and judicial cooperation can help in their suppression and punishment.

**Originality/Value:** The scientific value of this paper derives from a comparative legal analysis of the most important international legal instruments and mechanisms used against corruption at the international legal level. The results obtained by the author during the analysis may be important in the implementation of international legal standards on the prevention and punishment of corruption in the domestic legal order. The paper has some original value as it points to the harmful consequences of non-application or inconsistent application of adopted international legal standards on the fight against corruption for social security, good governance and

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rule of law, which are basic preconditions for developing any democratically stable and economically sustainable societies.

Keywords: International law, international organizations, conventions, corruption.

#### About the author

**Duško Dimitrijević,** PhD, is the former Director of the Institute of International Politics and Economics in Belgrade. Now, he is working as a Professorial Fellow at the Center for International Law and International Organizations of the Institute. He is the Editor-in-Chief of scientific journal the European Legislation (Evropsko zakonodavstvo) and the Serbian Yearbook of International Law.



# AGAINST DIFFERENT FORMS OF CRIME - MAIN DIRECTIONS OF THE DEVELOPMENT OF HIGHER EDUCATION IN THE FIELD OF LAW ENFORCEMENT IN HUNGARY

#### Gabor Kovacs, PhD

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**Purpose:** The law enforcement education system is very important in the fight against the different forms of the crime. The Faculty of Law Enforcement of the University of Public Service has initiated the preparation of a package of measures, which will draw increased attention to the future of law enforcement higher education.

**Design/Methods/Approach:** In the process creating the development plan of the Faculty of Law Enforcement, those measures were compiled, which can be implemented using internal resources and do not require significant financial support, but promote the development of law enforcement higher education. The tasks are performed by members of the several working groups. The essay introduces the efforts made by the faculty staff to improve the education. The aim of the measures is to create a modern law enforcement higher education system. The intended changes will be visible in the Faculty probably in 1-3 years. The essay collects the new development methods regarding the law enforcement education system of Hungary. The essay delivers new information for the readers in this field using the scientific approach.

**Findings:** The study will present the general and the specific requirements needed to modernise the law enforcement education at the Faculty of Law Enforcement. According to the essay's findings, the good practice of the University of Public Service could be successfully adapted by other law enforcement training institutions around the world as well.

**Originality/Value:** This topic of the essay was not the subject of a previous study. The findings, the conclusions and the collected information can be used in the development of the law enforcement education in different countries too. This essay provides useful methods and good practices for the development of law enforcement education.

**Keywords:** law enforcement education, public service, good practices, development of education.

#### About the author

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## COMPENSATION FOR DAMAGES DUE TO BREACH OF TRADE SECRET

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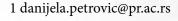
**Purpose:** The purpose of the trade secret analysis is to point out the importance of legal sanctioning of any act of unauthorized disclosure, duplication, acquisition, or use by third parties of confidential information legally controlled by the holder of a trade secret (natural or legal person). Modern living and working conditions, as well as the wide application of technology, have influenced the increase in the possibility of breaches of trade secrets, which indicates the need for their adequate protection.

**Design/Methods/Approach:** The application of the normative method in the analysis enables the study of not only theoretical and normative but also practical problems related to the protection of business secrets. The comparative legal method will determine the specifics and differences, as well as what is general and common across legal systems when it comes to violation and protection of business secrets.

**Findings:** A business secret is the result of many years of research and investment, and its holder should be provided with compensation for damage caused by its violation. In legal theory and practice, views are divided on whether the protection of business secrets should be achieved within the framework of contractual, property, or criminal law. The only position is that the holder of a trade secret is entitled to compensation for lost profits and non-material damage due to breaches of trade secrets. Determining the amount of damages implies defining an objective criterion that takes into account the costs incurred by the holder of the trade secret in the field of research, but also the profit that the person who violates the trade secret achieves. The work analysis determines whether the existing legal rules in the field of protection of business secrets have a stimulating effect on persons who could potentially misuse information that is a business secret, and do so.

Originality/Value: The value of the work is the theoretical and practical contribution to the adequate protection of business secrets. The theoretical significance is reflected in the improvement of existing knowledge in the field of the protection of business secrets. The work's practical significance is in providing possible recommendations to legislators and regulators for developing effective rules in this area. The assessment of the current rules governing the protection of business secrets in our legal system and proposing possible changes or acceptance of the concepts of developed countries aims to create legal rules whose application would lead to adequate protection of business secrets.

**Key words**: breach of trade secret, protection of trade secret, compensation for damages.





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## RISK FACTORS FOR RELIGIOUS RADICALISM AND VIOLENT RELIGIOUS EXTREMISM

Ice Ilijevski, PhD

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Kire Babanoski, PhD

**Purpose:** The paper addresses the problem that societies have with identifying the risk factors for religious radicalization that lead to violent religious extremism and terrorism and their incorporation into national strategies to combat extremism and terrorism. For a closer study of the problem, the etiology of violent extremism and radicalization as a process will be considered.

**Design/Methods/Approach:** The authors were using desk literature and reports analysis, with a special focus on the European Union's reports, the National Strategy for the Suppression of Violent Extremism, and reports from Macedonian authorities.

**Findings:** The most common factors at the central level in North Macedonia are those in between accusing religious groups and views as push factors, and the lack of cooperation and trust between ethnic communities as a pull factor. On local level, those factors include religious marginalization and pressure by religious leaders as push factors, and unemployment, distrust between local authorities, policies, and local people as pull factors.

**Originality/Value:** The paper gives an organizational overview of the most common push and pull factors that could lead to violent extremism using European and national documents. It could help in more deep and complex research of this phenomenon's etiology.

Keywords: violent extremism, radicalism, terrorism, factors.



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## SECRET AS AN OBJECT OF CRIMINAL LAW PROTECTION IN THE REPUBLIC OF SERBIA

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### Mladen Milošević, PhD

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**Purpose:** In this paper the authors seek to provide a specific systematization of some criminal offences within the Criminal Code of the Republic of Serbia (CC) and the Data Secrecy Law, recognizing the secret as an object of the criminal offence, followed by a later criminal law analysis of the selected incriminations. The purpose is to explain how the legislator in the Republic of Serbia perceives, evaluates and treats the secret as a category of criminal law in general, but also as specific kinds, such as a trade secret, official secret, state secret, private secret, military secret and secret data (classified data).

**Design/Methods/Approach:** The paper is organized in four chapters in addition to the introduction and the conclusion. The authors will try to provide a theoretical approach in making a specific systematization and normative analysis of the selected criminal offences. The subject of the paper implies the application of the methods of formal logic, such as deduction and induction, the comparative method, as well as the normative method.

**Findings:** The authors deal with the issue of the type and the content of criminal law protection of a secret, but only the secret, excluding secrecy. Hence, five criminal offences will be the subject of the criminal law analysis: unauthorized disclosure of a secret, Art. 141 of the CC; disclosure of a trade secret, Art. 240 of the CC; disclosure of a state secret, Art. 316 of the CC; disclosure of an official secret, Art. 369 of the CC and disclosure of a military secret, Art. 415 of the CC. A critical analysis of the used authentic interpretation of the legislator will be given in order to divide different ways in defining the secret as a criminal law category.

**Originality/Value:** Originality is ensured through the implementation of specific systematization criteria and a critical analysis. The scientific value is reflected in the opening of the problematic issues of the definition of the special forms of secrets as an object of criminal law protection and systematization of such selected incriminations in one place, accompanied by a criminal law analysis.

Keywords: secret, Criminal Code, object of a criminal offence.



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## CHARACTERISTICS OF ENVIRONMENTAL CRIMES AS CHALLENGES FOR THEIR DETECTION AND PROVING

### Ivana Marković, PhD

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**Purpose:** Environmental crimes have currently become, like no other, a symbol of crimes that are hard to investigate and prove, despite being committed literally every day in our immediate surroundings – on soil, in the air and in water, to humans and to animals. The massive long-term consequences of these crimes and the on-going technological progress with its implications for flora and fauna, and by this for our immediate preconditions for life, have put them in the centre of attention. Yet, conviction rates are not proportionate to the importance and occurrence of these crimes. Reasons for that can be found in the very features of these offences. The purpose of this paper will therefore be to show and analyze the connection of the characteristics of environmental crimes with the disproportionally low convictions for them, stemming from problems in their detection and later proving.

**Design/Methods/Approach:** Doctrinal legal research is combined with statistical data, leading to normative conclusions and recommendations. The paper therefore deals first with the legislative formulations of environmental crimes, their forms and statistics, here in particular from the Republic of Serbia, which will serve as a representative example. Deriving from this initial base, the characteristics of environmental crimes are filtered out and analyzed in the context of their challenging detection and proving.

**Findings:** The variety, heterogeneity and complexity of environmental crimes, their blank legislative formulations, referrals to (or rather dependence on) administrative provisions (regulatory violations), the specific consequences of abstract and concrete endangerment, damage/harm can be underlined as difficulties for prosecution.

**Originality/Value:** The originality and value of the paper lie in recognizing and extracting the characteristics of environmental crimes that are problematic for their detection and proving, and that hence represent the main factors that influence the low number of convictions or even charges for and reports of these kind of crimes. The practical issues of a high number of unreported cases and challenges for their prosecution have been identified within their normative formations. In addition, those characteristics of environmental crimes can be found in the majority of jurisdictions worldwide and can be described as nearly universal. Therefore, the findings can provide the basis for general suggestions *de lege ferenda* for environmental crimes, beyond one certain legislation.

**Keywords:** environmental crimes, administrative dependence, endangerment, complexity, statistics, Serbia.



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## THE APPARENT IDYLL OF POMURJE'S RURAL AREAS FROM THE RURAL CRIMINOLOGY PERSPECTIVE

### Katja Eman, PhD1

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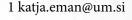
**Purpose:** The countryside is often imagined to be idyllic and safe environment, so the likelihood of victimisation is not taken very seriously. Among the security challenges in farm settings are concerns about criminal offences and perceptions of deviant behaviour problems. Pomurje is a region in the northeast of Slovenia along the Mura River. It is considered Slovenia's most agricultural region, thankso its geographical features, particularly its lowland distribution and location along the Mura River, as well as its favourable sub-Pannonian climate. In the last decade, criminological research has shifted focus from the urban to the rural environment, drawing attention to the phenomenon of rural crime. Among rural crimes, farm crime or agricultural crime stands out, including theft of livestock, crops, and other agricultural products; burglaries and thefts from houses and outbuildings (e.g., machinery, equipment, fuel, sprayers, fertilizers, etc.); vandalism in fields or buildings; fraud (on products or mortgages); arson; biosafety breaches; illegal dumping of waste; theft of water and wood from natural habitats; growing marijuana or producing illicit drugs on agricultural land; abuse of animals and sometimes farmworkers; and illegal hunting. This form of crime also stands out because it does not exist in urban environments.

**Design/Methods/Approach:** This paper aims to discuss farm crime and victimisation in the region Pomurje. The secondary analysis of the Slovene National Rural Crime Victimisation Survey results, focusing only on Pomurje region, is conducted. The statistical database was analysed by using univariate and multivariate statistics methods.

**Findings:** An overview of events in Pomurje showed that the countryside is not always as idyllic as we see it from the outside. Findings revealed that in rural areas of Pomurje, property crime is the most prevailing form of crime. About half of farmers have been victims of crime in the past, the most common being property crime (theft, burglary, robbery, and damage), and the countryside "hides" many stories of domestic violence, sexual violence, elder abuse, and vulnerability. Following the guidelines of rural criminology, the results were analysed and interpreted, and proposals to address the identified problems in the region were formulated. Rural criminal settings in Pomurje are characterised by difficult socio-economic conditions (low income or poverty), alcoholism, and limited access to alternative methods of punishment and problem-solving.

**Originality/Value:** Rural criminology is a "new" branch of criminology, focusing on crime and victimisation in rural settings. Rural criminology is facing a recognition that interpersonal disputes, drug and alcohol abuse, and domestic violence are among the most common forms of crime in rural settings. The originality of the paper is in providing an assessment of the challenges with measuring and evaluating crime victimisation in rural areas, including problems with non-reporting of various crime types in many rural communities (such as family violence; farm crime); the use of police discretion; and issues of familiarity.

**Keywords:** rural environment, rural criminology, rural crime, rural victimisation, Pomurje.





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**Katja Eman**, PhD, is an associate professor of Criminology at the Faculty of Criminal Justice and Security, University of Maribor. She is the head of the EU SHINE project and, as a researcher, participates in the research program "Safety and Security in Local Communities: Comparison of Rural and Urban Environments". At the Faculty of Security Sciences, University of Maribor, she teaches criminology and victimology, green criminology and environmental justice, economic and white-collar crime, international security integration, and crime mapping. Her main research interests include green criminology and environmental crime, crime mapping, crime prevention, and rural criminology.



### PHENOMENOLOGY OF JUVENILE CRIME IN CROATIA

### Ksenija Butorac, PhD

Police University College, Zagreb, Croatia<sup>1</sup>

### Dijana Gracin, PhD

Military Studies of the University of Zagreb, Croatia

**Purpose:** The aims of this research are to provide an overview of the relevant body of literature into an area of the juvenile offenders and to analyze the scope, structure and dynamics of juvenile delinquency in the past decade (2011–2021) in the Republic of Croatia.

**Design/Methods/Approach:** Empirical analysis is based on secondary data from registered crimes of the police, state attorney's offices and juvenile courts in the observed period, which is an indirect measure of juvenile delinquency in a particular area. Juvenile offenders are analyzed in relation to gender, age, educational attainment, types of crimes committed, and other relevant variables in order to identify trends and crime patterns spanning decade.

**Findings :** The paper discusses the continuous downward trend of reported, accused, and convicted juveniles, as well as the relatively large number of dismissed criminal charges by applying the principle of opportunity as a rehabilitation approach of the State Attorney's Office to juvenile offenders. Although conditional opportunity as a measure of diversion relieves the courts and shortens the time from the commission of a crime to the beginning of treatment, the simultaneous increase in the number of juvenile recidivists is worrying, indicating that the current system of juvenile sanctions does not fulfill its primary purpose of special prevention.

**Originality/Value:** The research paper builds on the existing knowledge of the topic and addresses possible implications of future developments within the mixed model of the juvenile justice system that is lacking in the existing literature.

Keywords: juvenile crime, scope, structure and dynamics, models of juvenile justice, Croatia.



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**Dijana Gracin**, PhD, Assistant Professor at the Military Studies of the University of Zagreb and the Vice-Dean for Science, Development and Quality Management at the Croatian Defence Academy "Dr. Franjo Tudjman". She is the author and co-author of several professional and scientific papers, mostly in the fields of criminal law, criminology and penology. She is the assistant editor-in-chief of the scientific journal *Strategos* and a member of the Croatian Association of Criminal Sciences and Practice. She has participated in several domestic and international scientific and professional conferences.



## STUDENTS' EXPERIENCES OF VICTIMIZATION AND PERPETRATION OF ONLINE VIOLENCE

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### Antonija Raspopović, MSc

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### Danica Vasiljević-Prodanović, PhD

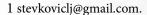
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**Purpose:** The COVID-19 pandemic has led to an accelerated shift to digital services and platforms in all areas, including distance learning and work from home in many professions. Rapid technological development and the increasing use of information and communication technology (ICT) by young people have made them benefit from outstanding opportunities on the Internet and via new technologies, in terms of education, socialisation and working opportunities. The use of ICT has also led to increased risk of victimisation, as well as criminalisation, in various ways in the digital world. Bearing that in mind, the purpose of this paper is to present the findings from research on students' experiences of victimisation by online violence, as well as their violent behaviour in cyberspace.

Design/Methods/Approach: In this cross-sectional study, the data were collected during the spring semester of 2021/22 academic year, on a random sample of university students in Serbia. We used an online questionnaire, as a convenient method of data collection that enables higher response rates, guarantees the anonymity of the respondents, and eliminates any tendency toward bias. The questionnaire used in this survey represents a combination of a victimisation survey and a self-reported survey. Findings: The research findings show a high risk of online victimization among university students in Serbia. Most of them were victims of multiple forms of online violence, including the IPV, mostly in a form of control tactics. Additionally, in half of the cases, the results indicate victim-offender overlap, with respondents being the victim and the perpetrators of online violence.

Originality/Value: Most of the available research on cyber victimization focuses mainly on children and adolescents as victims and/or as perpetrators, without recognizing the student population as the most frequent users of the ICT, which puts them at high risk of cyber victimization and risk of behaving intrusively and violently in cyberspace. Our research only sheds light on this problem and emphasises the need for more comprehensive research on a sample of this category of young people and the development of preventive strategies adjusted to them in order to prevent their victimisation and perpetration of cyber violence.

**Keywords**: online violence, victimization, victims, gender-based violence, students.





Ljiljana Stevković, MSc, is a PhD candidate, and an Associate in Higher Education and the Commissioner for the Protection of Equality, Faculty of Special Education and Rehabilitation, University of Belgrade. She holds a Master of Science degree and a license for mediation. Additionally, she is in the first year of education for systemic family psychotherapy, organized by the Institute for Mental Health. She was engaged in numerous international and national scientific projects as a researcher and in practical projects as a mentor for women with disabilities (within NGO FemPlatz) and health workers (within the Center for women victims of sexual violence). Currently, she is a coordinator for Serbia for the project International Self-Report Delinquency Study. Additionally, Ms Stevković is a member of the Femicide Research Group, as a part of the Victimology Society of Serbia. So far, she has published numerous academic papers, book chapters, and conference proceedings and was co-editor of one monograph. She is a secretary and a member of the Editorial Board of Temida, a leading national journal in the field of social sciences. The areas of her research interests include juvenile delinquency, gender based violence, child abuse and neglect, victimization of persons with dissabilities.

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## CRIMINAL OFFENCE OF AVOIDANCE OF WITHHOLDING TAX

### Miljkan Karličić<sup>1</sup>

**Purpose:** The subject of the paper is the tax criminal offence of avoidance of withholding tax, stipulated in the Criminal Code of the Republic of Serbia in Article 226. The Criminal Code stipulates two criminal offences whose protective object is the right to tax, namely: criminal offence of tax evasion (Article 225) and avoidance of withholding tax (Article 226). The Law on Tax Procedure and Tax Administration clearly stipulates that all public revenues shall be considered taxes, i.e., taxes and contributions and all public revenues from the state (territorial autonomy - province, local self-government units, cities and municipalities as well as city municipalities). The act of execution is the failure to pay and the failure to pay the tax amount calculated, when it is considered to have been undertaken, and the offence is completed by the payment of only the net amount by the taxpayer. The basic form of the criminal offence of avoidance of withholding tax does not prescribe the objective condition of incrimination, so the existence of a criminal offence can be excluded by applying the institute of offences of minor importance. The offender of this criminal offence is a taxpayer – a responsible person in a legal entity and an entrepreneur, and cannot be the taxpayer himself. On the subjective level, intent and direct intention are also prescribed, as in the case of tax evasion. It has been stipulated that the serious and the most serious form of this offence (having the qualifying circumstances included under the intent, and not the objective conditions of incrimination), imposes fines which amount to over one million and five hundred, i.e., seven million and five hundred thousand dinars of unpaid tax. For the basic form of this criminal offence, the Criminal Code lays down imprisonment sentences ranging from up to three years and a fine, for the more severe form imprisonment sentences ranging from six months to five years and a fine, and for the most severe form imprisonment sentences ranging from one to ten years. On one hand, the subject of the paper is the relation between the provisions of the Criminal Code and the Law on Tax Procedure and Tax Administration, and on the other hand the provisions of a number of laws that have character of blanket legal norms influencing the application of the provisions governing the criminal offence of avoidance of withholding tax. The paper will especially consider the aspect of the objective responsibility of the offender of this criminal act.

**Design/Method/Aprproach:** Empirical, comparative and legal methods will be used. The paper will present and analyse the statistical data available to the author referring to the criminal offence of avoidance of withholding tax.

**Findings:** *De lege ferenda* solution of tax criminal offences as a typical example of blanket criminal offences and the question of the justification of narrowing down the protection zone will be a possible conclusion of the consideration.

**Originality/Value:** This paper will contribute to the elaboration of this problem from the legal, criminal, and political aspects and improve the practice of courts, prosecutors, lawyers, tax police, criminal police, tax inspection, and tax administration.

**Keywords:** taxes, contributions, withholding tax, failure to pay taxes.

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### INTERNATIONAL STANDARDS FOR DAMAGE COMPENSATION FOR UNJUSTIFIED CONVICTION AND ILL-FOUNDED DEPRIVATION OF LIBERTY

### Academician Miodrag N. Simović, PhD1

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### Vladimir M. Simović, PhD

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**Purpose:** The aim of the paper is to present the latest case law of the Constitutional Court of BiH and the European Court of Human Rights in the context of the right to compensation of damage for unjustly convicted persons and persons ill-foundedly deprived of liberty.

**Design/Methods/Approach:** The right to compensation for unjustified conviction or ill-founded arrest contained in Article 5 paragraph 5 of the European Convention for the Protection of Human Rights and Fundamental Freedoms. Having incorporated the Convention into the domestic legal system (Article II/2 of the Constitution of Bosnia and Herzegovina), Bosnia and Herzegovina is obliged to pay fair compensation in case of violation of the law or Article 5 itself. Many countries have acted in a similar way, whether through direct application or adoption. General scientific methods and method of documentary content analysis have been used in the research.

**Findings:** This right has an important role in strengthening democracy, the rule of law and the protection and affirmation of human rights and fundamental freedoms. The rule of law guarantees the definition of institutional forms of protection. It affirms the dignity of the individual. Efficient protection of human rights and fundamental freedoms is of the utmost importance for Bosnia and Herzegovina. In this context, with the aim of establishing a unique criminal legislation for the whole BiH and development of efficient and independent criminal justice, it is necessary to take steps referring to monitoring and harmonization of national criminal law norms with inernational standards on basic human rights and freedoms, as well as fundamental principles of international cooperation in fight against crime. This would contribute to a greater legal safety of citizens in BiH and ensure equal application of rights to everyone.

**Originality/Value:** The history of the institution of damage compensation for unjustified conviction and ill-founded deprivation of liberty is its constant expansion. It is a matter of subjective and public law: subjective because it is related to the affected person, and public because it is not in the interest of the state that an innocent citizen is convicted, or unjustifiably arrested, detained or in any way deprived of their liberty. Case-law of the European Court of Human Rights and the Constitutional Court of BiH presented in this paper should serve as an orientation for future legislative interventions in this fied in BiH.

**Keywords:** damage compensation, unjustified conviction, ill-founded deprivation of liberty, European Convention for the Protection of Human Rights and Fundamental Freedoms.

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Miodrag N. Simović, PhD, was born in Foča. He graduated from the Faculty of Law in Novi Sad. He earned his master's degree after completion of the postgraduate studies in the Criminal Law in Novi Sad in 1981. He defended his doctoral thesis at the same Faculty in 1985. He was appointed Judge of the Constitutional Court of the Republika Srpska in December 1998 and remained in office until May 2003, when he was appointed Judge of the Constitutional Court of Bosnia and Herzegovina. He is a full professor at the Faculty of Law in Banja Luka and Faculty of Law in Istočno Sarajevo. As of 2011, he is an international member of the Russian Academy of Natural Sciences and as of 2012 he is a corresponding member of the Academy of Sciences and Arts of Bosnia and Herzegovina. As of 2014 he is a member of the European Academy of Sciences and Arts. He presented well over 450 papers to the scientific and professional community. He is an author of 65 books (22 as an author and 43 as a co-author). As a speaker, he participated at over 190 scientific and professional events, both home and abroad. He also participated in nine international projects.

**Vladimir M. Simović**, PhD, Prosecutor at the Prosecutor's Office of Bosnia and Herzegovina, was born on 19 February 1983 in Foča. After finishing High School in Banjaluka, he entered the Faculty of Law in Banjaluka, where he graduated in 2005. He completed his internship at the District Court in Banja Luka, after which he worked in the same Court as an associate from 2008 to 2012 and as a senior associate from 2012 to 2013. He was appointed as a prosecutor in the Prosecutor's Office of Bosnia and Herzegovina by the Decision of the High Judicial and Prosecutorial Council of Bosnia and Herzegovina of 20 November 2013.



### MOBBING - A HARMFUL PRESENT-DAY PHENOMENON

### Mojca Rep, MSc

Associate Judge at the District Court Celje, Higher Court in Ljubljana, Slovenia<sup>1</sup>

**Purpose:** It wasn't until 2007 that Slovenia introduced workplace harassment into its legal system. Research from the previous decade has clearly shown the necessity to regulate legislation in this area. The phenomenon of mobbing is becoming more and more common nowadays, so there is a great need for legal order. The phenomenon of mobbing should not be underestimated in any case.

**Design/Methods/Approach:** Recent research has shown that due to globalization and growing competitiveness, mobbing is increasingly present in the environment.

**Findings:** The law is well regulated nowadays by new laws and amendments, but the applicability of the provisions has not been fully demonstrated in practice. Despite the legalization of the reversed burden of proof, the process of proving usually contains facts that are too general and consequently easy for the employer to defend from. The jurisprudence has shown that the mere verification of documentation and not the acts themselves does not show the true picture, which also affects the number of jurisdictions in Slovenian courts.

Originality/Value: Mobbing is recognized as truly wasteful and socially harmful. The legislation in Slovenia in the field of harassment is appropriate and provides victims of harassment with adequate protection. But any alleged unethical behavior does not constitute illegal behavior (mobbing). Therefore, in assessing whether mobbing takes place in an environment, it is necessary to be precise in stating the facts, otherwise the principle of adversarial proceedings is infringed.

**Keywords:** legislation, case law, reverse burden of proof, research.

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# THE EFFICIENCY OF LEGAL NORMS AND THEIR IMPLEMENTATION IN THE LAW ENFORCEMENT ACTIVITIES OF THE INTERNAL AFFAIRS BODIES OF THE REPUBLIC OF BELARUS

### Pavel Igorevich Protashchik<sup>1</sup>

Academy of the Ministry of Internal Affairs of the Republic of Belarus

**Purpose:** Determination of the effectiveness of legal norms and their implementation in the law enforcement activities of the internal affairs bodies of the Republic of Belarus, as well as factors affecting the effectiveness of law enforcement.

**Design/Methods/Approach:** System analysis, comparative method, deduction method, as well as private research methods: comparative legal, historical, logical, sociological, structural, institutional, etc.

**Findings:** The effectiveness of legal norms and their implementation in the law enforcement activities of the police department directly depends on the quality of the personnel policy, the legal education of police officers, the interaction of the police department with the public, and the legislative array. The problem of the implementation of law in modern conditions is of particular relevance. The quality of the law enforcement process depends on the rule of law and the rule of law in society, the administration of justice, and the activities of law enforcement agencies. We believe that the main factors influencing the effectiveness of law enforcement are: the conditionality of the role of law enforcement in the mechanism of law enforcement, the information security of law enforcement entities, the quality of the work of the law enforcement body, the level of legal awareness and legal culture of the subjects of law, which is directed by the law.

**Originality/Value:** The effectiveness of law is one of the most important objects of study of jurisprudence. In connection with the importance of this issue, jurists defend different, sometimes opposite, approaches regarding the essence of this issue. The effectiveness of legal norms and their implementation in law enforcement activities of internal affairs bodies is relevant all the time, because the main purpose of law is the harmonious regulation of social relations. How effective is one or another rule of law and its implementation in law enforcement is the object of study.

Keywords: law, efficiency, law enforcement, legal norm, social institutions, legislation.

### About the author

**Pavel Igorevich Protashchik** is a cadet of the Faculty of Criminal Police of the Educational Establishment "Academy of the Ministry of Internal Affairs of the Republic of Belarus". His sphere of scientific interests is the problem of globalization of modern legal systems.



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### **GLOSSA ABOUT HATRED**

### Dragana Ćorić, PhD

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**Purpose:** A lot of has been said about hate speech and hate crimes. Laws that deal with these topics are enacted all around the world, in order to protect citizens. Many books have been written; many debates and researches have been conducted, yet these were not so fruitful as we had hoped them to be. In this paper, the author would like to reflect on the other part of those crimes – the origin of hatred that causes such crimes; to find an explanation (a cognitive, rational one and also an emotional one), and to consider possible ways to solve them or at least reduce them.

**Design/Methods/Approach:** Psychological and axiological methods, along with comparative method and deep cognitive analysis.

**Findings:** The author believes that if we try to understand hatred, its origin and development from the feeling of fear, then we will be able to stand against these types of crimes more effectively, without repressive penal policy. The main hypothesis here is that hatred comes out of fear, and that if we can reduce fear, we can reduce hate crimes as well. The author finds it possible to achieve this goal in practise.

**Originality/Value:** This approach to analysis of hate speech and hate crimes, according to our findings, has never been taken. The author combines her knowledge of law, ethics and psychotherapy in order to find the solutions if not for suppression of those crimes, then for reducing the level of this kind of violence.

Works and empirical researches solely on hatred are rare, because this is not a pleasant topic to deal with. The author hopes that the findings presented in this paper could make a modest contribution to understanding of this topic from both legal and psychological points of views.

Keywords: hatred, origin, fear, reducing, hate crimes.

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Dragana Ćorić, PhD, born in Leskovac, graduated from the University of Novi Sad Faculty of Law. In 2002/2003 she completed a master's degree in German at the Deutsche Rechtsschule, organized by the Law Faculties of Novi Sad and Münster. In 2005 she received the master academic degree (magister iuris, M.A.) from the University of Niš Faculty of Law with the thesis "Time in Law". She received her Ph.D. degree from the same University in 2011 having defended dissertation "The Principle of Acquired Rights and the Retroactive Effect of the Law". Scholarships and awards: at the initiative of students of the organization Young Lawyers of Serbia, listed as one of the ten best young lawyers in the Republic of Serbia (2007); special recognition for the promotion of safe communities (2008); October Award of Novi Sad for raising awareness about the safety of children and youth in Novi Sad (2014); elected, by the votes of students, for one of the ten best and most inspiring professors of the University of Novi Sad during the event "Researchers' Night" (2016). Published more than 120 scientific papers.



## LGBTI PEOPLE IN SERBIA BETWEEN HOMOPHOBIC VIOLENCE AND SOCIAL INTEGRATION

### Zorica Mršević, PhD1

Faculty of European Legal and Political Studies, Novi Sad, Serbia

**Purpose.** The purpose of the paper is to present current trends of improving the position of LGBTI people in Serbia, in which this population is increasingly playing a role. The paper also aims to indicate that improvements lead to an increase in social cohesion, but also to warn that long-standing obstacles and challenges have not yet been removed.

**Design/Methods/** Approach. The design applied comprises both a case study and research findings. Namely, cases documented by human rights activists show that homophobic violence is still dominant feature of everyday life, especially of young LGBTI people. But at the same time, recent research indicates an increase in the willingness of citizens to have closer private and professional relationships with LGBTI people, while rejecting negative stereotypes and prejudices about them. The author relies on the Copenhagen School of Security Studies, which expands the number of security actors. In this sense, the improved position of LGBTI persons enables them to become a securitizing actor who participates in the process of social negotiation with decision makers on prevention measures and sanctions for threats to their safety.

**Findings.** The main finding of this research is that LGBTI people in Serbia are slowly but steadily gaining a necessary securitization capacity, becoming actors of changes, who increasingly participate in the processes of solving the challenges of their own securitization. They are thus in a better position concerning action of putting on the political agenda the issue of their security being endangered by continuous victimization, violence and discrimination.

**Originality/Value.** The main value of the paper is the presentation of the LGBTI people's authentic requests for improvements regarding changes of the police interventions, adoption of public policies and necessary synergy activities of several different securitization actors, e.g., governmental entities, independent institutions, non-governmental organizations.

**Keywords:** LGBTI people in Serbia, gaining legitimacy of securitization, homophobic violence, degree of social integration, positive attitudes, rejection of prejudices, changes in police interventions, necessary legal regulations.



**Zorica Mršević**, PhD (obtained at Faculty of Law, University of Belgrade, in 1986), currently is professor of *Gender studies* and *Phenomenology of violence* at the Faculty of European Legal and Political Studies. She is a retired principal research fellow of the Institute of Social Sciences in Belgrade. She worked as gender advisor of the OSCE Mission to Serbia from 2001 to 2008. From 2008 to 2010, she was the deputy of the Republic Ombudsman mandated for gender equality and the rights of persons with disabilities. In 2021, she was engaged as a member of the working group by the Serbian Government to draft starting ground of laws on Gender equality, Prohibition of discrimination and Same-sex unions. In 2021, she conducted the research on Degree of social inclusion of the LGBTI persons for the NGO Geten, Belgrade-based organization for LGBTI rights. She is the author of over 20 monographs and over 400 scientific papers in the field of women's and LGBTI rights, theory of violence, gender equality. More information at www.zoricamrsevic.in.rs



### PUBLIC SAFETY IN KRALJEVO – RANKOVIĆEVO (1944–1955)

**Jovan Simijanović, PhD**Institute for Serbian Culture in Priština, Leposavić, Serbia

Predrag Terzić, PhD1

Institute for Political Studies, Belgrade, Serbia

**Purpose**: The first decade after the Second World War represents an important period, but still a period with which scientific public is not sufficiently familiar with regarding the activities of public security organs at the local level in former Serbia as one of the republics of the former Democratic Federal Yugoslavia, and the Socialist Federal Republic of Yugoslavia. The intention of the author is to contribute to the knowledge of the circumstances at the time of the founding of the city militia in 1945, about its activities and the tasks it faced until 1955.

**Design/Methods/Approach:** In this paper, the historiographical methodological approach is applied. Primary historical sources were researched. Using methodological approaches to sociology, we tried to contribute to the knowledge about the impact of criminal phenomena on the society of that time, as well as the types, characteristics and success of the institutional fight against these phenomena.

**Findings**: Among other things, the paper deals with the founding of the city militia and its work in the spring of 1945, as well as some characteristic criminal phenomena they encountered: disturbing public order and peace, fights, prostitution, theft, etc. The organizational structure of the public security services is presented.

**Originality/Value:** The paper is primarily based on previously unused primary and original historical sources from the Historical Archive of Kraljevo and the Archives of Serbia. In addition to the above, the paper used and published sources, relevant literature and the press.

Keywords: Public security, crime, Kraljevo – Rankovićevo, Serbia, Yugoslavia, 1944–1955.



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**Jovan Simijanović**, PhD, Research associate, born on October 16, 1981 in Kraljevo. Jovan completed primary and secondary school in his hometown – Kraljevo. He graduated (equivalent master) on May 12, 2006 at the Department of History, Faculty of Philosophy, University of Priština, temporarily relocated to Kosovska Mitrovica. He defended his diploma thesis entitled *Byzantium and the Southern Slavs in the 6th and 7th centuries*. He received his PhD on December 5, 2017 at the module for the history of Yugoslavia at the Faculty of Philosophy in Belgrade. He defended his doctoral dissertation *Kraljevo – Rankovićevo, a city under socialism 1944–1955*. Since August 2006, he has been employed at the Institute for Serbian Culture in Priština, with a temporary headquarters in Leposavić. Since his employment, he has been engaged in the projects of the said Institute. He had the only break in his work (unpaid leave) during 2007 due to his regular military service. So far he has published over forty scientific papers and articles. Among other scientific works, he published a book entitled: *Društvena istorija Kraljeva – Rankovićeva*: 1944–1955, Leposavić 2018.

Predrag Terzić, PhD, Senior research associate, was born in 1984 in Kraljevo, where he completed primary and high school. He graduated and completed his master's studies at the Faculty of Political Sciences in Belgrade. He defended his doctoral thesis entitled *The Influence of European Liberal Thought on the Political Modernization of Serbia from 1878 to 1903* at the Faculty of Political Sciences in Belgrade in 2015. Predrag Terzić is employed at the Institute for Political Studies, as a senior research associate. By invitation, he taught at universities in Russia (State University in Samara) and Slovenia (University of Maribor), and during 2018 and 2019 he was on the list of lecturers at the Higher Studies of Security and Defense. He published the book *Freedom in the shadow of the crown: Serbia between national sovereignty and political elitism*, Belgrade 2018, and he also wrote over 40 scientific papers. Among domestic journals, he published articles in *Srpska politička misao* (*Serbian Political Thought*), *Godišnjak Fakulteta političkih nauka* (*Yearbook of the Faculty of Political Sciences*), *Politička revija* (*Political Review*), *Kultura polisa* (*Culture of Polis*), and *Međunarodna politika* (*International Politics*).



## IMPACTS OF ORGANISED CRIME ON CITIZENS AND NATIONAL SECURITY

### Marjan Gjurovski, PhD

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**Purpose:** Assuming that we are living in a very risky society with a growing number of increasingly fluid and diverse security risks, we base our study on a contemporary theoretical framework in which today's risks are considered as a societal and security problem. Above all, we were determined to assess whether we encounter the basic features of security risks typical of globalised and postmodern societies in the context of today's society and the setup of the state and its security agencies. Today, security risks represent the predominant topic in our discussions on security.

**Design/Methods/Approach:** The study aims to determine the security risks that North Macedonia's society and state are facing today. Assuming that we are living in a very risky society with a growing number of increasingly fluid and diverse security risks, we refer to a contemporary theoretical basis in which today's risks are considered as a societal and security problem. Above all, we were determined to assess whether we encounter the basic features of security risks typical of globalised and postmodern societies in the context of today's society and the setup of the state and its security agencies.

**Findings :** To the question in what kind of society we live in today regarding the number and type of security risks, more than two thirds (70%) of the respondents chose the option "in a society with greater security risks", i.e., a riskier society; 19% chose the option "in a society with the same or similar security risks as before"; and 11% chose "in a society with fewer security risks than before".

Originality/Value: The aim of the research project is to gain valid scientific insight concerning the existing security risks and their types, as well as prevention, management, and assessment of security risks, based on an analysis of the current opinions and positions of the expert community. The survey results as well as the entire scientific research project will not only benefit security scholars but also policymakers and managers at the security institutions of the Republic of North Macedonia. The object of this research is to determine the character of security risks in North Macedonia's society and state today in the context of the changes in security risks under the conditions of globalisation and postmodern societies.

Keywords: organised crime, national security, citizens.

**Marjan Gjurovski**, PhD, is an associate professor in the scientific field of *Integral Security* and *International Security and International Relations*. He was the Vice-Dean for Science and Development of the University "St. Kliment Ohridski" Faculty of Security in Skopje and the Vice-Rector of the University "St. Kliment Ohridski" in Bitola. He managed and participated in several research projects in the fields of security and political science, attended numerous international scientific conferences and regional political conferences. He has been the President of the Macedonian Political Science Society since 2019.



## THE INFLUENCE OF THE RUSSIAN-UKRAINIAN CONFLICT ON THE SECURITY OF CIVIL AVIATION OF THE REPUBLIC OF SERBIA

Radojica Lazić, PhD

Jelena Božinova, MSc<sup>1</sup>

Faculty of Diplomacy and Security in Belgrade, Serbia

**Purpose**: The purpose of this paper is to present the impact of the Russian-Ukrainian conflict on the security of civil aviation of the Republic of Serbia. The conflict between Russia and Ukraine escalated on February 24, 2022, when Russian President Vladimir Putin announced the beginning of military operations. Although under enormous external pressure, the Republic of Serbia did not impose sanctions on Russia but doubled the number of flights to that country. This paper will show how this will reflect and affect the security of our country's civil aviation.

**Design/Method/Approach**: Theoretical research based on expanding existing and gaining new knowledge in the subject area through the collection of valid facts. The approach used in the research is a synthesis, merging of existing knowledge about the phenomena being researched.

**Findings:** Taking into consideration that only a small number of scientific papers deal with this topic, this paper should provide new insights into how the security of civil aviation can be ensured in the current crisis situation.

**Originality/Value:** The paper is based on research, using available scientific and professional literature, legal regulations governing this area, as well as practical experience and procedures that are applied in such circumstances at the Belgrade "Nikola Tesla" Airport.

Keywords: Russia, Ukraine, conflict, security, civil aviation, Republic of Serbia



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Radojica Lazić, PhD, is a full professor. HE received his PhD degree from the Faculty of Political Sciences, University of Belgrade. He has next to thirty years of professional engagement in the security sector, and for a longer period of time he has been involved as a lecturer in higher education institutions. He actively participated in the creation of the Academy for National Security, established by the Decision of the Government of the Republic of Serbia in 2013, at which he is also engaged. He has taught security courses at the Faculty of Law, University of Novi Sad, the National Security Academy, and the Faculty of Diplomacy and Security in Belgrade. He published several monographs, textbooks and books, as well as a large number of scientific and professional papers. In addition to the above, he gave several lectures to the students and other participants at other faculties and institutions. He participated in several international scientific gatherings and conferences. He is a reviewer in the most prestigious domestic and foreign scientific journals.

Jelena Božinova, MSc, is an expert associate at the Faculty of Diplomacy and Security in Belgrade. She is a master lawyer of national security, with many years of experience working in the counter-diversion control service at the Nikola Tesla Airport. In addition to her regular job, she actively participates in the projects of the Faculty of Security and Diplomacy. She participated in several international conferences, in particular, at the XI International Conference "Archibald Resii Days" held in 2021 at the University of Criminal Ijnvestigation and Police Studies, where she presented her first scientific paper via an online platform (written in co-authorship with Prof. Radojica Lazić, PhD). In addition to the above, she is an associate for the development of disaster risk assessments and protection and rescue plans.



## THE ROLE OF DIPLOMACY IN THE FIGHT AGAINST MODERN TERRORISM

### Slobodan Stojanovski, MSc

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### Marjan Nikolovski, PhD1

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**Purpose:** Nowadays we witness changing of the view of modern terrorism. As society develops, states tend to modernize their state systems and their segments in preventing terrorist acts. When speaking about segments, the basic focus must be on the economy, rule of law, and security establishment. The purpose of this paper is to show the cohesion between diplomacy and state security system related to dealing with threats that can threaten state security. These days, tactics, methods and ways of conducting terrorist acts are way more different than they used to be before. At the basic level, the communications are untraceable and undetectable, posing a difficult problem for the intelligence services to solve.

**Design/Methods/Approach:** During the research conducted for this paper, the authors focused on a comparative method to predict a better future reform of the current security system. Thus, security systems around the world must evolve and implement new methods of providing security and stability. Intelligence agencies should base their information gathering on modern IT capabilities, which will increase the effectiveness and speed with which state authorities respond to threats.

**Findings:** Diplomacy, as it is, assists states in achieving targeted policy that is part of the state strategy. There are numerous factors that influence how diplomacy is conducted, but the primary one is the state's offensiveness in implementing long-term strategies.. Offensive diplomacy is primarily practiced by developed and historic states that are geostrategic leaders in their surroundings.

Originality/Value: In order to build a better and safer environment, this article is centered on supporting innovative approaches to the link between the security system and diplomacy. The combined use of diplomacy and intelligence products can predict and solve incoming state problems in ways that no other system segment can. Security systems must rely on intelligence analyses and respond timely by engaging in diplomacy to prevent security instability. That is why the effectiveness of larger states is far significant than that of smaller states.

Keywords: diplomacy, intelligence, terrorism, security system.



**Slobodan Stojanovski**, MSc in Security Sciences. He works in the Ministry of Defense of the Republic of North Macedonia. He is a doctoral student at the Faculty of Security – Skopje. His research interests include security risks and security systems.

**Marjan Nikolovski,** PhD, is a full professor at the Faculty of Security – Skopje. He is a member of the Department of Security Sciences. His research interests include the structure of the security system as a response to modern risks and threats.



## ENVIRONMENTAL CRIMES: A CHALLENGE WITH SIGNIFICANT EFFECTS ON OUR WELL-BEING

### Gianina Anemona Radu, PhD1

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**Purpose:** Environmental crimes are an area of increasing concern, both due to their global nature and their high impact, which goes beyond the capacity of the criminal justice systems to address them effectively. Environmental criminals pose a grave threat to our everyday lives, our environment and might have an impact on the well-being of future generations. Borders do not hamper environmental crimes, which range from ivory trafficking and illegal fishing to illegal logging and the dumping of hazardous waste.

**Design/Methods/Approach:** There is a problem in identifying and setting priorities and responding to emerging trends in environmental crime. It is also a priority to implement a forum for law enforcement officials to share experience and expertise and discuss new strategies. The objective of the current research is to provide a concise and up-to-date overview of the legal and operational challenges arising from international judicial cooperation on environmental crime cases and to share best practices to overcome these challenges. A starting point was the Eurojust Report on Environmental Crime, which was corroborated with theoretical and empiric examples. The analysis covered both operational and procedural information in the relevant Eurojust cases and legislation of the EU. Environmental crimes have a big impact on societies. Despite an increase in cross-border environmental crime investigations, it remains challenging for law enforcement authorities to link cases to organized crime activities.

**Findings:** Fisheries crime threatens food security and undermines the sustainability of our oceans. Living forests are vital to human health. Criminals dispose of waste illegally, endangering the air we breathe, our water and soil. We help ensure protected wildlife is free from criminal exploitation. Which would be the impact of these crimes on a long-term perspective? How do we prevent them? There are just two fundamental questions to be considered.

**Originality/Value:** The preoccupations in this field are new and under full research. It's important to highlight the ways to prevent and combat environmental crimes in a changing world.

Keywords: environment, crimes, illegal trade, threat, trafficking, law enforcement

### About the author

**Gianina Anemona Radu**, PhD, is a senior lecturer at the "Alexandru Ioan Cuza" Police Academy, teaching Criminal and Penal Law. She holds a PhD in law, master in business management and a post-university course in criminal law. Her fields of expertise include Criminal Law, Criminal Procedural Law, Law Enforcement Methodology, and Mediation.



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### COMPARATIVE ANALYSIS OF PHYSICOCHEMICAL CHARACTERISTICS OF CHEMICAL WARFARE AGENTS AND THEIR SIMULANTS

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**Purpose:** Unfortunately, the use of Chemical Warfare Agents (CWA) as a weapon of choice is still a terrorist and military practice despite the International Chemical Weapons Convention. Due to their extremely hazardous and lethal characteristics, they can be used only in a strictly controlled environment (laboratories and isolated platforms) by trained personnel. In order to avoid accidents and to achieve an adequate safety level during personnel training or equipment testing, it is a common practice to use CWA simulants (a mixture of different compounds that has similar physicochemical properties as CWA but no toxic properties) or CWA mimetics (chemical compounds of similar molecular structure with a significantly lower degree of toxicity) prior to the CWA themselves.

**Design/Methods/Approach:** In this paper, qualitative research design has been applied, which includes a literature review, qualitative content analysis, and comparative analysis.

**Findings:** In this study, different characteristics of these three chemical groups have been compared, including viscosity, colour, volatility, and detection behaviour when ion-mobility spectrometry (IMS), flame photometry (FP), and colorimetric methods have been applied. The use of simulants creates no psychological stress during the training process. They exhibit similar physicochemical properties as CWA, but some of them give a false positive indication of the presence of a different type of agent. Mimetics do create psychological stress due to their toxicity and exhibit similar physicochemical properties, but a number of them cannot be detected properly by standard detection techniques, or the detection time is prolonged. Nevertheless, the use of both simulants and mimetics is justified through common training and testing practices.

**Originality/Value:** This paper will provide a comprehensive and systematic review of scientific data in this area of research. The secondary scientific goal of this research was to provide a comparative analysis of the physicochemical characteristics of chemical warfare agents and their simulants.

**Keywords:** chemical warfare agents, chemical warfare simulants, security, chemical warfare mimetics, comparative analyses, security.

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**Gvozden Tasić**, PhD, is a Research associate and Head of CBRN Center at the "Vinča" Institute of Nuclear Sciences – National Institute of the Republic of Serbia, University of Belgrade. His main research focus is on CBRN protection and green energy. He is a research team leader for the subject "Development and implementation of novel materials, methods and protocols in prevention, protection and efficient response to potential CBRN incidents". Prior to that, he was the project manager on a project: "Hydrogen energy – development of novel materials, electrolytic hydrogen production, hydrogen fuel cells and isotopic effects" funded by the Ministry of Education, Science, and Technological Development of the Republic of Serbia. He is the author of over 30 scientific papers (over 750 citations, h-index 13).

**Milica Ćurčić**, MSc, is a PhD candidate at the Faculty of Security Studies, University of Belgrade. She is a research assistant at the "Vinča" Institute of Nuclear Sciences – National Institute of the Republic of Serbia, University of Belgrade. Milica Ćurčić is also a security and defence officer at the "Vinča" Institute and she is engaged in CBRN training at CBRN Center for Forensics and Training at the "Vinča" Institute. Milica worked as a liaison officer assistant to the EU Mission in Pristina during 2017. She is the author of over 30 scientific papers and articles in the field of security studies, with the focus on researching national security, national interest, and security threats.

**Ivana Perović**, PhD, is a Research associate at the "Vinča" Institute of Nuclear Sciences – National Institute of the Republic of Serbia, University of Belgrade. She is a research professional skilled in material science, chemistry and electrochemistry. Her main focus is on developing new materials for electrolytic hydrogen production and hydrogen fuel cells, as well as on materials related to CBRN protection and detection. She is the author of more than 30 scientific international papers and proceedings, with around 200 citations.



# DEVELOPMENT OF LATENT FINGERMARKS ON DIFFERENT SUBSTRATES USING POLYANILINE-BASED POWDER OBTAINED BY SIMPLE PRECIPITATING METHOD

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### Nikola Glođović

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### Nikola Milašinović, PhD

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**Purpose:** Polymeric materials are widely used in various industries and fields, such as vehicle and air industry, medicine, pharmacy and nanotechnology, but still insufficiently investigated in forensic applications. Their specific properties could be of a great significance in forensic trace analysis and they could also gratify the cost-benefit requirements.

**Design/Methods/Approach:** This paper deals with polyaniline-based polymer powder, obtained by simple precipitating method, with the aim to develop latent fingermarks deposited onto different surfaces, often found at the crime scene.

**Findings:** Attenuated total reflectance Fourier-transform infrared spectroscopy (ATR FT-IR) analyses confirmed interactions between components of PANI-based powder system. Optical microscopy and scanning electron microscope (SEM) analysis suggested that prepared powder has fine, uniform particles, which easily bind to the sweat and lipid fingerprint residues. Prepared powder was also used to visualize latent fingermarks left on different non-porous, semi-porous and porous surfaces, i.e. plywood, glass and paper.

**Originality/Value:** Obtained results showed that prepared powder could be used as a substitution for commercially employed fingerprint powders used in everyday forensic practice/trace analysis.

**Keywords:** polyaniline, precipitating method, latent fingermarks, forensic science.

#### About the authors

**Nemanja Vučković**, MSc, earned his master's degree in Technology Engineering from the University of Criminal Investigation and Police Studies, at the Department of Forensic Engineering, in 2019 when he successfully defended the Master's thesis entitled "The Application of Chitosan-based Microconjugates in Development of Latent Fingerprints – Pilot Study". Since 2014 he has been actively engaged as a demonstrator at educational events and fairs, where he presented and demonstrated the application capabilities of commonly used (commercial) methods, as well as novel approaches for developing

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latent fingerprints. Since 2016, he has been an active member of Forensic Polymer Section (head of section Nikola Milašinović, Ph.D.), where he has conducted the research on synthesis, characterization and application of various types of polymers in the field of forensic trace analysis, and forensic science, in general. Along with the research, he served for two years as a graduate teaching instructor for the chemistry courses within the scientific field of *Chemical Engineering*, at the Department of Forensics, University of Criminal Investigation and Police Studies. In academic year 2019/2020 Nemanja Vučković enrolled Doctoral Studies of Forensic Engineering at University of Criminal Investigation and Police Studies, and continued his research in the field of Forensic Science.

**Nikola Glođović**, BSc, earned his bachelor's degree in Technology Engineering from the University of Criminal Investigation and Police Studies, at the Department of Forensic Engineering. Since 2014 he has been engaged as a demonstrator at educational events and fairs, where he demonstrated the performances of routinely employed (physical) systems and new approaches for enhancing latent fingermarks. Since 2016, he has been a member of Forensic Polymer Section (head of section Nikola Milašinović, Ph.D.), where he also has conducted the research on different types of polymeric materials and their application in forensics. In academic year 2020/2021 Nikola Glođović enrolled Master Studies of Forensic Engineering at University of Criminal Investigation and Police Studies, and continued his research in the field of Forensic Science.

Nikola Milašinović, PhD, is a Chemical and Material Science Engineer that earned his doctorate degree in 2011 from the Faculty of Technology and Metallurgy, University of Belgrade, Serbia. He has been working on several long-term projects where his research basically covers syntheses of different types of polymer matrices and devices suitable for encapsulation/immobilization of various active substances, while preserving its 3D structural design, and these conjugates application in medicine, biotechnology, agricultural and food industry. He is also experienced in various types of polymerization procedures, while, more specifically, focuses his research to emulsion polymerization processes. Since February 1, 2016 he has collaborated with Ariella Shikanov, Associate Professor at Department of Biomedical Engineering and Macromolecular Science and Engineering, University of Michigan, USA, where he holds a title of Visiting Professor, while actively conducting research of the biomaterial design and cell-biomaterial interactions. Since October 2016, he has been appointed Head of the Forensic Polymer Section that, among other projects, deals with the research on synthesis and characterization of natural and synthetic polymer and polymer-conjugate powders that could be used in the detection and enhancement of latent finger/palmprints as substitutes for commercially available system applied in police everyday practice. As a liaison officer, Nikola Milašinović started the cooperation with colleagues from the School of Criminal Justice in Lausanne (Ecole des Sciences Criminelles), Switzerland, aiming at exchanging the knowledge between collaborating institution, recognizing the importance of building professional relationships at both national and international level, and sharing skills and experience with the colleagues within network. Furthermore, Nikola Milašinović at the same time actively pursues the research in the innovative application of biopolymers in forensics as well as different areas of chemical engineering, including incorporation of modern and innovative methods of (bio)polymer conjugates synthesis and characterization with the goal to identify procedures that could be deployed at the crime scene with little training and operator hazards.



## ROLE OF ELECTROCHEMISTRY IN THE MODERN FORENSIC SCIENCES AND MILITARY

#### Nikola Zdolšek, PhD1

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**Purpose:** Due to the high demand for fast screening of unknown substances in forensic sciences as well as high electrical energy delivery in different military devices, electrochemistry has found numerous applications in both mentioned fields. This paper will cover all applications of electrochemistry in the forensic sciences and military.

**Design/Methods/Approach:** Review and analysis of relevant scientific papers published in the past five years.

Findings: In the modern forensic sciences, analytical electrochemistry replaces classical analytical chemistry methods (which are expensive and time-consuming). Analytical electrochemistry involves the development of electrochemically active nanomaterials (electrocatalysts) for the fast detection of unknown substances with an extremely low limit of detection. These electrochemical devices, usually called electrochemical sensors, allow sensitive, cost-effective, rapid, and specific detection of different pesticides, pharmaceutical compounds, metabolites, toxins, drugs and their metabolites, biological compounds, warfare agents, etc. On the other hand, electricity is necessary for the adequate functioning of most different military devices. These military devices strongly depend on electrochemical energy storage and conversion systems such as electrochemical supercapacitors, batteries, and fuel cells. Despite wide use, all these electrochemical systems have drawbacks, and all electrochemical research is focused on solving problems and developing devices with high power and energy density, non-toxic and safer electrolytes for these devices, and compact and even flexible shape.

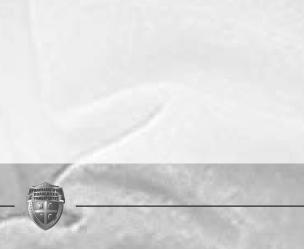
**Originality/Value:** For the first time, this paper will summarize and make connections between electrochemistry, forensic sciences, and military.

**Keywords:** electrochemistry, forensic sciences, analytical electrochemistry, energy storage and conversion, military.



**Nikola Zdolšek,** PhD, is a Research associate at "Vinča" Institute of Nuclear Sciences – National Institute of the Republic of Serbia, University of Belgrade, at the Department of Physical Chemistry. His research is focused on electrochemistry (energy storage and conversion). In 2020 he received a grant for the Proof of Concept project (Innovation Fund of the RS) and he is the first investigator on the PROMIS project (Science Fund of the RS). Dr Zdolšek has international scientific collaboration with Czech Republic and Portugal.

**Slavko Dimović,** PhD, is a Senior researcher at the "Vinča" Institute of Nuclear Sciences – National Institute of the Republic of Serbia, University of Belgrade at Department of Radiation and Environmental Protection. He currently serves as an assistant director for radiation safety and nuclear security at the "Vinča" Institute. In 2007, he worked at the IAEA and published more than 50 international manuscripts with over 750 citations. His scientific and professional interests are related to the management of nuclear and radioactive waste and nuclear security.



# FORENSIC CRIMINOLOGY, RISK ASSESSMENTS AND THE PREVENTION OF RECIDIVISM AN INTRODUCTION TO A GENUINE IDIOGRAPHIC METHOD

#### Nina Kaiser, PhD

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Purpose: The purpose of this paper is to present the vital role of Forensic Criminology for the prevention of recidivism with a focus on the application of (forensic) criminological knowledge in the daily decision-making practice of the courts. Criminological research is mostly confined to the (sociological) study of crime as a social phenomenon with a focus on the etiology and appearances of criminal behaviour within society as well as on responses to crime. Against this backdrop Criminology also studies the prevention of crime. The relevance of such criminological research is indisputable. However, research and risk assessment instruments mostly focus on specific (often sociodemographic and socioeconomic) factors, resulting in statistical findings, detached from the individual offender, his/her path towards criminal behaviour, his/her individual actions and needs, his/her potential danger of offending again and his/her individual assets that should be enriched in order to prevent recidivism. This raises myriad (legal, factual, and ethical) concerns. In fact, one of (or even the) the main objective of state responses to crime according to modern theory of criminal justice is to prevent the individual offender from offending repeatedly. Thus, the paper will give an insight to one idiographic methodological approach which refrains from relying on the comparison with the "average" offender and focuses on the individual and his/her behaviour: the Method of Ideal-Typical Comparative Case-By-Case Analysis (in short: MIVEA), as a tool for (recidivism) risk assessments as well as for designing measures to prevent the individual offender from offending again.

Design/Methods/Approach: The Method of Ideal-Typical-Comparative Case-by-Case Analysis will be presented and its potential role within the criminal justice system will be discussed. The paper will also survey possible future directions and will show current efforts to integrate Forensic Criminology into academic teaching, research, and practice. This research will be conducted mainly through literature review in this field. It largely draws on research conducted by the founders of the method in question and their successors. Furthermore, the paper will resort to information gained via the institutional cooperation between the Hans Gross Centre for Interdisciplinary Criminal Sciences at the Institute of Criminal Law, Criminal Procedure Law, and Criminology (University of Graz, Austria) and the Centre for Interdisciplinary Forensics (Johannes Gutenberg University Mainz, Germany) as the current driving force behind the presented method.

**Findings:** The issue under scrutiny is the application of specific criminological knowledge for risk assessments. As a result, the paper will provide knowledge about the role of Forensic Criminology in the field of risk assessments and the prevention of recidivism amongst offenders and will illustrate the importance of the application of genuine idiographic risk assessments methods. The paper proffers a forensic criminological method which allows individualized risk

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assessments and provides an excellent foundation for defining valid, accurate and proportionate measures against recidivism that meet the needs of the offender as well as the legal requirements under criminal procedural law. Ultimately, the paper will encourage debate on current risk-assessment and crime prevention approaches and will yield the benefits of the use of Forensic Criminology for the individual offender, the criminal justice system, and society at large. It will also raise concern about current practices and their conformity with the law.

Originality/Value: The present paper gives insight to an innovative approach in (Forensic) Criminology that applies criminological knowledge for risk assessments and crime prevention. Although the method would embody a valuable source for courts, correctional facilities and other stakeholders in the criminal justice setting (e.g., social work/probationary services), it is still not well known among researchers and practitioners. The method was developed in Germany in the late 1980s, is till now researched and applied in some German regions, but not widely recognised and adopted throughout the country or across borders. This paper therefore intends to provide basic knowledge about this method to an international audience to facilitate research, education in and application of Forensic Criminology.

Keywords: forensic criminology, etiology, applied criminology, recidivism, prevention of crime.

#### About the author

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### SURRENDERING BIOLOGICAL DATA TO THE POLICE: PUBLIC PERCEPTION ON THE MANDATORY BIOMETRIC IDENTITY DOCUMENTS IN THE REPUBLIC OF SERBIA

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**Purpose:** As of recently, a growing number of European Union states is launching new biometric identity documents with the goal of increasing security and preventing fraud. In the light of collecting large amounts of citizens' biological information (fingerprint, facial image, signature) by the government, numerous questions and concerns must be considered, including the invasion of privacy and freedom of expression, possibilities of misuse, unregulated and unauthorized use, as well as accidental loss of such sensitive, personal data. Serbian national identity card, a biometric personal document obligatory for all civilians above the age of 16, has been issued since 2008 – a process operated and managed by the police. Considering the absence of a prior referendum or public debate on this complex topic, the goal of this work was to initialize the assessment of public knowledge and opinions on various aspects surrounding surrendering their biological information to the government.

**Design/Methods/Approach:** In order to collect and statistically analyze the data presented in this manuscript, an anonymous survey was administered by the snowball sampling method to 620 participants, who took part in the study voluntarily. The survey was comprised of thirteen questions focusing on basic comprehension and attitudes towards the use of biometric data in identity documents, as well as socio-demographic characteristics.

**Findings:** Results of this study demonstrated general acceptance of biometric identity documents among the interviewed public, with permissive views on chipped ID cards and overall familiarity with the type of data stored on the biometric chip. However, these views were contrasted with concerns regarding privacy and surveillance issues, as well as potential misuses of the technology. Such a dichotomy is discussed with respect to the relevant social context and its role in shaping public perspective on often contrasting concepts – public security and individual privacy.

**Originality/Value:** Only a few studies globally have examined the public's acceptance of the employment of biometric documents, currently a highly relevant and disputed topic in Europe. Therefore, this work not only sets, for the first time, a baseline for the Serbian public but also expands the limited international body of knowledge on the topic. Given the impact biometric identities have on the entire society, consideration of the public's voice is a prerequisite to designing or improving operational and legal frameworks for responsible use and management of personal, biological data by the police.

**Keywords:** biometric identification, identity documents, public opinion.



Smilja Teodorović, PhD, is a full professor at the Department of Forensic Sciences, University of Criminal Investigation and Police Studies in Belgrade, Serbia. She received her PhD and postdoctoral training in molecular biology at Georgetown University in the United States. Her teaching and research are focused on the applications of biology and genetics in contemporary forensic sciences and criminalistics. She teaches several courses, including Genetics, Forensic DNA Analysis, Biotechnology, and Biometric Identifications. Her more recent research interests are centered on the expanding use of DNA-based technologies by law enforcement and security agencies, such as the impact that genetic information use by the government has on the entire society.



#### SOME ASPECTS OF FORENSICS IN DIGITAL FUTURE

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**Purpose:** Forensic concept related to growing digitalization process should continue to keep focus on providing support for legal proceedings, following defined and adopted guidelines. Nowadays, the application of technology has become dominant in many aspects of everyday life owing to the digitalization of processes and the application of information and communication technologies (ICT) in all spheres of life. Technologies such as communication networks, mobile devices, Internet of Things (IoT) solutions, cloud-based services, and cyber-physical systems bring many benefits, but also challenges. At the same time they bring a new threat to cyber security, and it is an emerging issue.

**Design/Methods/Approach:** Achieving continuity in the development of forensic methods is an imperative in modern society. Monitoring the development and enabling the application of new technological solutions in the field of determining the identity of a person requires significant resources and adjustments while preserving the existing systems in accordance with the normative framework. Relevant literature has been reviewed and the current state of affairs regarding the use of new technologies has been analysed.

**Findings:** There is a large diversity of digital devices and it is constantly increasing; data storage capacity is growing exponentially as well as the need to process ever-larger datasets with ubiquitous time imperatives, especially when used by law enforcement agencies. This includes both applied and theoretical approaches. It helps to get an early start in new techniques researching because of the increasingly stringent accrediting requirements for any new technique from the forensic perspective.

Originality/Value: With respect to general trends in digitalization processes in all spheres of life, and attempt has been made to identify the effect that it has on forensics methodologies that might be used for person identification. Given that the urgent needs for identification has been recognized, new technologies and measures have to be taken in consideration in order to be capable to give right answer from the forensic point of view. The surveys carried out to date have identified various areas within the field identification where it would be valuable to direct further efforts and to engage in research.

Keywords: forensics, digital forensic investigation, identification, digitalization.



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Milesa Srećković, PhD, School of Electrical Engineering, University of Belgrade, Belgrade, Serbia, received the B.S., M.S., and Ph.D. degrees in electrical engineering from the University of Belgrade, Belgrade, Serbia, in 1964, 1968, and 1979, respectively. The working experience starting with the Institute of Physics, Belgrade. Fulltime professor at the School of Electrical Engineering, University of Belgrade, 73 Bulevar Kralja Aleksandra Street, Belgrade, Serbia. Her research interests include quantum electronics, laser physics, techniques, applications, optical measurement methods, application of laser technologies in different areas such as medicine, preservation of cultural heritage, military purposes, etc. physics applied in forensics, and security issues.

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# ANALYSIS OF DDOS ATTACK DETECTION TECHNIQUES FOR SECURING SOFTWARE-DEFINED NETWORKS

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> Brankica Popović, PhD Petar Čisar, PhD Kristijan Kuk, PhD

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**Purpose:** Software Defined Networks (SDN) is an important technology that enables a new approach to how we develop and manage networks. SDN divides the data plane and control plane and supports the logical centralization of network control. However, the centralized architecture of SDN is also a potential vulnerability for various types of malicious attacks. This paper elaborates the security aspects of virtualization as a basic concept of SDN architecture.

**Design/Methods/Approach:** Among the many types of attack, one of the most frequent and destructive are Distributed Denial of Service (DDoS) attacks. This paper presents an analysis of techniques to detect DDoS attacks in SDN networks. First it describes the SDN architecture and then elaborates different detection techniques for DDoS attacks. Additionally, this paper emphasizes the types, components, and categories of detection solutions according to the techniques or methods used.

**Originality/Value:** The important approaches and those that can answer the complexity of detecting DDoS attacks in SDN are the detection schemes based on entropy and machine learning principles. This paper in general focuses on these two detection techniques and summarizes their benefits and drawbacks and finally provides a guideline for future research directions related to DDoS detection techniques in SDN networks.

**Keywords:** software-defined networking, virtualization, distributed denial of service attack, entropy, machine learning, detection schemes



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**Kristijan Kuk**, PhD, graduated from the Technical Faculty in Zrenjanin, University of Novi Sad, Serbia. He earned PhD degree in informatics and computing science at the Faculty of Electronic Engineering, University of Nis. In addition, he is the author of more than ten papers which are published in scientific journals from SCI/E lists, two papers are published as a chapter for Springer and one chapter for Elesvier books. Since 2019 he has been an associate professor at the University of Criminal Investigation and Police Studies in Belgrade. His research interests are intelligent agents, data mining techniques, and secure software development.



#### LAWFUL HACKING - TECHNICAL ISSUES IN LAW

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**Purpose:** Since legislators in several countries in recent years have introduced necessary amendments in criminal procedure rules, the purpose of the paper is to consider regulatory framework for lawful hacking as a new digital investigative measure, i. e. the power of LEA to secretly and remotely access a computer device or network in order to gather digital evidence.

**Design/Methods/Approach:** Because police hacking powers vary considerably by jurisdiction, with various functionalities and scopes, but also with the way the law regulated important technical issues, the author analyses normative framework using comparative legal method. Based on the legislative provisions, the author discusses how technical means and techniques used by law enforcement agencies are represented in the legislation.

**Findings:** The integrity of the digital evidence, extracted from the target's device/network after hacking, may be maintained only if several technical issues are properly addressed in law: which exploits are to be used as necessary and preferable, should LEA be obliged to disclose vulnerabilities; if LEA should purchase or develop in-house hacking tools; in which manner the hacking tools need to be secured, and in line with which state-of-the-art guidelines; if automatized hacking operations, such as drive-by-downloads or water-holing, should be allowed, etc.

**Originality/Value:** After using comparative and normative method, the author suggests policies by which any potential damage for data security and privacy could be limited, when regulating and enforcing norms for lawful hacking. In this sense the author gives concrete *de lege ferenda* proposals.

Keywords: digital evidence, digital investigation, police hacking, lawful hacking.

#### About the author

**Milana Pisarić,** PhD, is a Teaching Assistant with PhD, at the Faculty of Law, University of Novi Sad. For many years she has been interested in researching cybercrime, digital forensics, digital investigation, and digital evidence. This research interest has so far resulted in the PhD thesis "Specifics of *proving cybercrime*" defended at the Faculty of Law, University of Belgrade in 2016, the monograph study "Electronic Evidence in Criminal Procedure", published in 2019, and numerous articles, published throughout the mentioned period.

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### TOWARDS HYBRID CONTROL-FLOW AND DATAFLOW ARCHITECTURES

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**Purpose:** High performance computing algorithms are often programmed solely for a single type of computer architecture. Some algorithms are more suitable for dataflow architectures, while others are scalable when executed using control-flow architectures. Increasing number of transistors on a single chip die creates the opportunity to combine multiple computing paradigms on a single chip. This allows faster communication between them and therefore faster algorithm execution.

**Design/Methods/Approach**: This manuscript advocates for a hybrid control-flow and dataflow architecture on a single chip. Explanation of these architectures is followed by the design of the hybrid processor. The evaluation is based on the simulator of jobs executed on the proposed hybrid processor, dataflow architecture, and control-flow architecture.

**Findings:** Simulation comparison reveals the acceleration possibilities for certain high performance computing algorithms when executed using the proposed hybrid architecture. This can improve video surveillance in terms of better real-time face recognition, but also in terms of tracking subjects based on video streams from multiple locations, reducing the total power consumption at the same time.

**Originality/Value:** The proposed computer architecture isn't commercially available. However, with increasing number of transistors per chip, it is justified to combine existing computing paradigms in order to decrease the total processing time of high performance computing algorithms. Future work includes simulating the execution of an artificial intelligence algorithm that requires communication speed between dataflow and control-flow architectures comparable to the speed of modern cache memories to prevent under-utilization of dataflow hardware.

**Keywords:** high performance computing, dataflow architectures, control-flow architectures, job scheduling.

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Veljko Milutinović, PhD, received his PhD from the University of Belgrade in Serbia, spent about a decade on various faculty positions in the USA (mostly at Purdue University and more recently at the University of Indiana in Bloomington), and was a co-designer of the DARPAs pioneering GaAs RISC microprocessor and the related GaAs Systolic Array with about 14000 GaAs microprocessors. Later, for almost three decades, he taught and conducted research at the University of Belgrade, in EE, MATH, BA, and PHYS/CHEM. His research is mostly in datamining algorithms and DataFlow computing, with the emphasis on mapping of data analytics algorithms onto fast energy efficient architectures. Most of his research was done in cooperation with industry (Intel, Fairchild, Honeywell, Maxeler, HP, IBM, NCR, RCA, etc.). For 10 of his books, forewords were written by 10 different Nobel Laureates with whom he cooperated on his past industry sponsored projects. He published 40 books (mostly in the USA), he has over 100 papers in SCI journals (mostly in IEEE and ACM journals), and he presented invited talks at over 400 destinations worldwide. He has well over 1000 Thomson-Reuters WoS citations, well over 1000 Elsevier SCOPUS citations, and about 4000 Google Scholar citations. He is a Life Fellow of the IEEE and a Member of The Academy of Europe and a Foreign Member of The Montenegro National Academy of Sciences and Arts.



CIP – Каталогизација у публикацији Народна библиотека Србије, Београд

343.85:343.9.02(048) 351.74/.76:005.7(048)

### INTERNATIONAL scientific conference "Archibald Reiss Days" (2022; Belgrade12)

Book of abstracts / XII International scientific conference "Archibald Reiss Days" Belgrade, 8-9 November 2022; [editor-in-chief Tanja Kesić]. - Belgrade: University of Criminal Investigation and Police Studies, 2022 (Belgrade: Birograf Comp). - 76 str.; 24 cm

Tiraž 150.

ISBN 978-86-7020-485-0 ISBN 978-86-7020-190-3 (za izdavačku celinu)

- а) Криминалитет -- Сузбијање -- Апстракти
- б) Криминалистика -- Апстракти
- в) Полиција -- Организација -- Апстракти

COBISS.SR-ID 79160585

