

# 4<sup>th</sup> International Conference on Cryptography, Security and Information Systems (4<sup>th</sup> CrySIS)



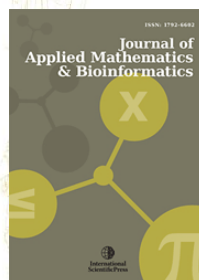
Hellenic Military Academy

21<sup>th</sup> - 22<sup>th</sup> May 2020

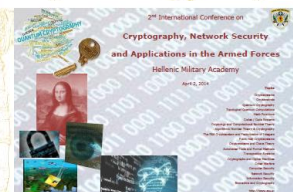
## Introduction

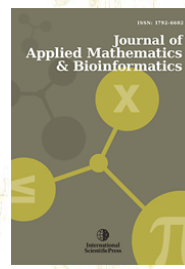
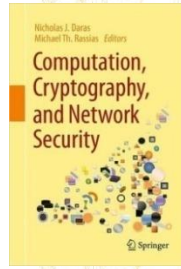
A broad spectrum of modern scientific research in areas of interest of Military Science is based on the application of cryptographic methods and information security. Particularly, a pure mathematical thinking is widely applied for constructing suitable models and constitutes the core of several investigations. Already, within the framework of continuous activity for the development of initiatives towards relevant mathematical research, the Hellenic Military Academy, the Department of Mathematics of the National and Kapodistrian University of Athens and the Hellenic Mathematical Society jointly organized successfully the 1<sup>st</sup> International Conference, April 6, 2012, on the subject of **Cryptography and their Applications in the Armed Forces**.

Selected papers presented at that Conference were published in 2 (two) special issues of the JOURNAL OF APPLIED MATHEMATICS and BIOINFORMATICS (JAMB) (Volume 3, Issue 1, [https://www.scienpress.com/journal\\_focus.asp?main\\_id=57&Sub\\_id=IV&volid=84](https://www.scienpress.com/journal_focus.asp?main_id=57&Sub_id=IV&volid=84) and Volume 3, Issue 4, [https://www.scienpress.com/journal\\_focus.asp?main\\_id=57&Sub\\_id=IV&volid=122](https://www.scienpress.com/journal_focus.asp?main_id=57&Sub_id=IV&volid=122)).

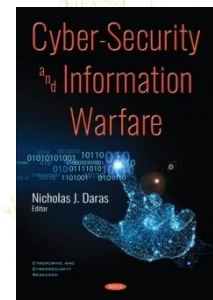
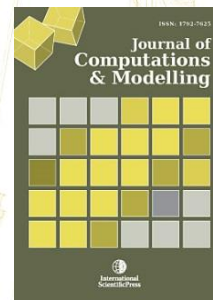
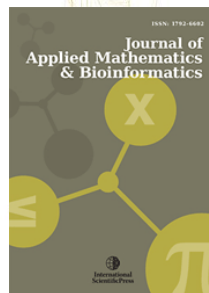
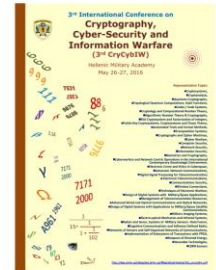


After that, the Hellenic Military Academy organized the 2<sup>nd</sup> International Conference on **Cryptography, Network Security and Applications in the Armed Forces**, Wednesday, April 2, 2014. Selected papers presented at that Conference were published in a U.S. SPRINGER special volume entitled "COMPUTATION, CRYPTOGRAPHY AND NETWORK SECURITY" (<http://www.springer.com/us/book/9783319182742>) while several selected from the remaining issued a year later, in 2015, in a JAMB Special Issue (Volume 5, Issue 3, [https://www.scienpress.com/journal\\_focus.asp?main\\_id=57&Sub\\_id=IV&volid=208](https://www.scienpress.com/journal_focus.asp?main_id=57&Sub_id=IV&volid=208))





Subsequently, the Hellenic Military Academy organized the 3rd International Conference on **Cryptography, Cybersecurity and Information Warfare (3rdCryCybIW)** on Monday, May 27 and Thursday, May 26 2016. Selected Conference papers were published after decision of expert referees in a U.S. SPRINGER special volume with title "OPERATIONS RESEARCH, ENGINEERING AND CYBER SECURITY" (<https://www.springer.com/us/book/9783319514987>), while several others selected from the rest were published on a JAMB's Special Issue (Volume 6, Issue 3, [https://www.scienpress.com/journal\\_focus.asp?main\\_id=57&Sub\\_id=IV&volid=276](https://www.scienpress.com/journal_focus.asp?main_id=57&Sub_id=IV&volid=276)) and a Special Issue of the JOURNAL OF COMPUTATIONS & MODELLING (JoCoMod) (Volume 8, Issue 2, [http://www.scienpress.com/journal\\_focus.asp?main\\_id=58&Sub\\_id=IV&volid=341](http://www.scienpress.com/journal_focus.asp?main_id=58&Sub_id=IV&volid=341)). Finally, part of the rest of the presentations was published in 2019, following the judgment of a specialized scientific committee, in a special volume of the NOVA SCIENCE PUBLISHERS Scientific Publishing House, in New York.



Both the aforementioned successful events and the relevant volumes testify to international interest, while at the same time promoting and acclaiming internationally the scientific work being done in both the University Community and the Armed Forces..

In view of the above, and in the context of further activation and promotion of mathematics and their applications, the Military School of Evelpids will hold the 4th International Scientific Conference on

### **Cryptography, Security & Information Systems (4<sup>th</sup>CrySIS)**

on the days of **Thursday 21 and Friday 22 May 2020.**

### **Aims of the Conference**

A wide range of modern scientific research in the fields of military science is based on the development of new cryptographic and cryptanalytical methods, together with the foundation of new security theories and techniques, as well as the application of innovative cybercrime and sophisticated control and information systems. war, as well as remarkable scientific contributions to communications and geoinformation systems. Special methodologies are widely applied and the design of relevant models is at the core of many related work.

## The main objectives of this Conference are:

- 1) To give the opportunity to young and established scientists working in the above items to present their research results and exchange views within the framework of a constructive practice.
- 2) To support and promote synergy between scientists engaged in cryptographic issues, cyber-security and information warfare and communications systems.
- 3) To support and further promote research and dissemination of knowledge in the Conference objects.

## Representative topics

- Cryptosystems
- Cryptanalysis
- Quantum Cryptography
- Topological Quantum Computations
- Hash Functions
- Codes / Code Systems
- Cryptology and Computational Number Theory
- Algorithmic Number Theory & Cryptography
- The RSA Cryptosystem and Factorization of Integers
- Public-Key Cryptosystems
- Cryptosystems and Chaos Theory
- Automated Tools and Formal Methods
- Transposition Systems
- Cryptographs and Cipher Machines
- Cyber Warfare
- Computer Security
- Network Security
- Information Security
- Biometrics and Cryptography
- Electronic Crime and Ethics in Cyberspace
- Cyber-War and Network Centric Operations in the International Contemporary Geostrategic Environment
- Command and Control Warfare (C2W)
- Information Based Warfare (IBW)
- Psychological Operations (PSYOPS)
- Military Information Support Operations (MISO)
- Economic Informative War
- Information Terrorism
- Semantic Attacks
- Simulation Warfare
- Advanced Communication Networks
- Digital Signal Processing for Telecommunications
- Telecommunications Electronics
- Communications Security
- Wireless Connections / Wearable Technologies
- Techniques of Electronic Warfare
- Digital Systems Design for Military / Space Applications
- Management of Telecommunication Resources
- Advanced Wired Communications
- Optical Communication Systems and Networks

- Satellite Communications
- Military Imaging Systems
- Electro Mechanical Systems and Infrared Systems
- Radar and Sonar Systems
- Military Sensor Systems / CBRN Sensors
- Data Fusion
- Cognitive Communications and Software Defined Radio
- Sensor Networks and Self-Organizing Communication Networks
- Implementation of Transceiver Subsystems with FPGA
- Directional Energy Weapons
- Wearable Technologies
- Spatial Databases
- Development of Cartographic Applications
- Cartography and Visualization
- Spatial Big Data
- Navigation System Applications
- Special Issues Remote Sensing (Optical-Thermal)
- Military Environmental Information Analysis
- Unmanned Aerial Vehicles (UAVs & Drones)
- Geospatial Data Quality and Geographic Information System Project Management
- Big data analytics techniques for geospatial applications
- Geographical Information and Crisis Management
- Combination of Remote Sensing-Photogrammetry Applications in National Security
- Microwave Remote Sensing (SAR) LASER Remote Sensing (LIDAR)
- Digital Image Processing for Remote Sensing - Photogrammetry applications.

### The Conference can attend and participate with presentations of papers:

1. Researchers and Scientists involved in the theory and application of cryptography, cyber security, information warfare, communications and information systems
2. Armed Forces personnel involved in cryptography, cyber security, information warfare, communications and information systems
3. Executives of companies conducting research on cryptography, cyber security, information warfare, communications and information systems
4. Teachers of all levels of education dealing with the objects of the Conference.

Postgraduate Theses may also be presented at the Conference as long as they meet the imposed requirements.

### Publication of Selected Papers:

Selected papers of the Conference will be published in a special volume of leading international scientific publishing house, as well as in peer-reviewed scientific journals related to the subject. All submissions should be written in English.

### Important Dates

- |  |            |
|--|------------|
| I. Deadline for Submitting Abstracts:                      | 19/04/2020 |
| II. Deadline for Accepting Abstracts:                      | 03/05/2020 |
| III. Date of Abstracts Electronic Posting:                 | 10/05/2020 |
| IV. Deadline Application to Participate in the Conference: | 20/05/2020 |

## Conference Committees

### Bureau of the Conference

Demetrius Ch. Choupis, Hellenic Military Academy, Athens, Greece

Nicholas J. Daras, Hellenic Military Academy, Athens, Greece

### Scientific Committee

1. Nikolaos G. Bardis, Hellenic Military Academy, Athens, Greece
2. Christos Christopoulos, University of Nottingham, U.K.
3. Constantine Coutras, Montclair State University, U.S.A.
4. CTJ Dompson, University of Manchester, U.K.
5. Nikolaos Doukas, Hellenic Military Academy, Athens, Greece
6. Demetrius Iracleous, Hellenic Military Academy, Athens, Greece
7. Michael Gargalakos, Hellenic Military Academy, Athens, Greece
8. George Kaimakamis, Hellenic Military Academy, Athens, Greece
9. Nicholas V. Karadimas, Hellenic Military Academy, Athens, Greece
10. Irimi Karanasiou, Hellenic Military Academy, Athens, Greece
11. Vyacheslav Kharchenko, National Aerospace University, Kharkiv, Ukraine
12. Oleksandr Markovskiy P., National Technical University of Ukraine, Kiev, Ukraine
13. Gerasimos Meletiou, T.E.I. of Epirus, Greece
14. Preda Mihăilescu, University of Göttingen, Germany
15. Xenia Mountroudou, Wofford College, U.S.A.
16. Traian Muntean, Aix-Marseille University, France
17. Anna Nagurne, University of Massachusetts, U.S.A.
18. Nikolaos Ouzounoglou, National Technical University of Athens, Greece
19. Nicholas Papadakis, Hellenic Military Academy, Athens, Greece
20. Panos Pardalos, University of Florida, U.S.A.
21. Dimitrios Poulakis, University of Thessaloniki
22. Themistocles Rassias, National Technical University of Athens, Greece
23. Rassias Michael Th., University of Zürich, Switzerland /Princeton University, U.S.A.
24. Robert Rolland, Institut de Mathématiques de Luminy, France
25. Benjamin Tams, University of Göttingen, Germany
26. Demetrius Triantafyllou, Hellenic Military Academy, Athens, Greece
27. George Trantas, Hellenic Military Academy, Athens, Greece
28. Wladimiro Ross Tsakalidis, Stockholm University, Sweden
29. Vinod Kumar Verma, Sant Longowal Institute of Engineering & Technology, Punjab, India
30. Christos Volos, Aristotle University of Thessaloniki
31. Michael Vrahatis, University of Patras, Greece

### Organizing Committee (Hellenic Military Academy)

1. Konstantinos Havenetidis
2. Konstantinos Karamatsoukis
3. Persefoni Kyriakouli
4. Rodoula Makri
5. Dionysios Mouzakis
6. Anastasios Lazopoulos

## Submission of paper abstracts and papers

### Procedure for submitting paper abstracts

Those interested in participating as speakers at the Conference are required to submit an abstract for their papers by

Sunday, April 19, 2020.

The abstract must contain the following information (in English):

1. Paper title
2. Author name(s), postal and electronic address (es)
3. A maximum of two pages of text detailing the objectives of the project, the approach methodology, the applications and the most important results of the paper.

Abstracts submitted will be evaluated on the basis of their originality and their contribution to the scientific work of the Conference. All accepted abstracts will be posted on the Hellenic Military Academy website by

Tuesday, May 05, 2020.

For publication of selected works in the special Volume of a leading scientific publishing house, as well as in the international scientific Journals, full relevant texts must have been submitted by

Sunday, March 28, 2021.

Submissions for publication in the Journals or the Volume should be written in English.

Abstracts should be submitted via e-mail to the electronic address

[ndaras@ilabsse.gr](mailto:ndaras@ilabsse.gr)

with subject heading: "**4<sup>th</sup> CrySIS /abstract**".

If an abstract is accepted for presentation, the authors will be notified to prepare their speech as follows:

1. The duration of each talk will be **twenty (20) minutes**
2. The written text of the presentation should
  - a. be written in **POWERPOINT** or **PDF**
  - b. be written in **English**
  - c. have been sent to the email address

[ndaras@ilabsse.gr](mailto:ndaras@ilabsse.gr)

with subject heading: "**4<sup>th</sup> CrySIS /presentation**" until

Sunday, May 17, 2020.

3. The language that can be used in the oral presentation of the speakers is either **English** or **Greek**.

## Registration

To participate in the Conference not required payment of a fee.

For those of the Conference participants who do not have a means of transportation, the Evelpidon Military School will provide buses to and from the Evelpidon Military School with a corresponding starting and ending point at the Metro station at Elliniko.

Those interested in further information are referred to the websites:

<http://www.sse.gr/>

and

<http://www.army.gr/>

