

Dimitris E. Simos

Priv.-Doz. Dr., FTICA

Curriculum Vitae

April 2024

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Executive Summary

Dr. Dimitris E. Simos is **Key Researcher** for the Applied Discrete Mathematics for Information Security research area with SBA Research located in Vienna at Austria and leads its Mathematics for Testing, Reliability and Information Security (MATRIS) research group, since 2017, which is currently comprised of 15 research staff members. As of 2022 he is also the **Head of Strategic Research** at SBA Research responsible for designing and implementing the strategic R&D agenda of the research center. He is also an **Associate Professor** (non-tenured track, venia docendi for Applied Computer Science) with Graz University of Technology as of 2021. He has been an **Adjunct Lecturer** with Vienna University of Technology and a **Distinguished Guest Lecturer** with Graz University of Technology. He holds a **Guest Researcher** appointment with the US National Institute of Standards and Technology (NIST), where he is also a **Research Member** of its Working Group on "Automated Combinatorial Testing for Software" (ACTS), and has been a **Visiting Scholar** at University of Bergamo. His research interests include Combinatorial Designs and their applications to Software Testing, Combinatorial Testing in particular, Symbolic Computation and Optimization Algorithms, and all aspects of Information Security. During his career Dimitris has (co)-authored over 150 papers in Discrete Mathematics and their applications to Computational and Computer Science and has been awarded the rank of Fellow of the Institute of Combinatorics and its Applications (FTICA) on 2012. His research has received national (FFG), European (FP7, H2020) and international (US NIST) funding. He supervised or is currently advising 8 Bachelor, 11 Master and 3 PhD students. He (co)-organized or (co)-chaired many international scientific conferences (i.e. ARES, MACIS, ACA, LION, CAI, QRS) and workshops (i.e. IWCT, DOD, MoCrySEn) and is a member of the editorial board of two Springer journals (MCS, ORFO). He is the **Founding Editor** and current **Lead Section Editor** of the Springer Nature Computer Science (SNCS) journal section on combinatorial methods and models in system testing (COMSYT). Last, he has served as the **Austrian Delegate** to the United Nations Commission on Science and Technology for Development (UN CSTD) in 2024.



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Education and Qualifications

- 2021 **Habilitation Degree for Applied Computer Science (Angewandte Informatik).**
Graz University of Technology, Faculty of Computer Science and Biomedical Engineering, Austria
- 2011 **Ph.D. in Discrete Mathematics and Combinatorics.**
National Technical University of Athens, Department of Mathematics, Greece
- 2007 **M.Sc. in Applied Mathematical Sciences, Major in Computational Mathematics.**
National Technical University of Athens, School of Applied Mathematics and Physics, Greece
- 2006 **B.Sc. in Mathematics, Major in Applied Mathematics.**
University of Athens, Department of Mathematics, Greece

Research Leadership and Management Positions

- 2024– **Management Board Member (Prokurist),** Research Center SBA Research, Vienna, Austria.
- 2022– **Head of Strategic Research,** Research Center SBA Research, Vienna, Austria.
- 2017– **MATRIS Group Leader,** Research Center SBA Research, Vienna, Austria.

Primary Research and Academic Positions

- 2014– **Key Researcher,** Research Center SBA Research, Vienna, Austria.
- 2013–2015 **ERCIM Postdoctoral Researcher (Marie Curie Fellow),** Research Center SBA Research, Vienna, Austria.
- 2012–2013 **ERCIM Postdoctoral Researcher (Marie Curie Fellow),** Research Center INRIA Paris-Rocquencourt, Project-Team SECRET, France.
- 2007–2011 **Research Assistant,** National Technical University of Athens, Department of Mathematics, Greece.

Visiting Research and Academic Appointments

- 2021– **Associate Professor (Privatdozent),** Graz University of Technology, Faculty of Computer Science and Biomedical Engineering, Institute for Software Technology (IST), Austria.
- 2020– **NIST Guest Researcher,** National Institute for Standards and Technology (NIST), Information Technology Laboratory (ITL), Applied Computational Mathematics Division (ACMD), USA.
- 2017 **Visiting Scholar,** University of Bergamo, Department of Management, Information and Production Engineering, Italy.
- 2014–2020 **Adjunct Lecturer (Universitätslektor),** Technische Universität (TU) Wien, Faculty of Informatics, Institute of Information Systems Engineering (ISE), Austria.

Honors, Awards and Fellowships

- 2024 **Austrian Delegate to the United Nations Commission on Science and Technology for Development (UN CSTD),** Workshop on harnessing Science, Technology and Innovation (STI) for Disaster Risk Reduction (DRR), Philipines.
- 2017 **Distinguished Guest Lecturer,** Graz University of Technology, Faculty of Computer Science and Biomedical Engineering, Institute for Software Technology, Austria.
- 2012 **Fellow of the ICA (FTICA),** Institute of Combinatorics and its Applications (ICA), Canada.
- 2011 **ERCIM “Alain Bensoussan” Fellowship,** The European Research Consortium for Informatics and Mathematics (ERCIM) co-funded by the European Commission under an FP7 Marie-Curie action.
- 2011 **Certificate Award,** National Military University (NMU) “Vassil Levski” and the Veliko Tarnovo University (VTU) “St. Cyril and St. Methodius”, Bulgaria.
- 2010 **Associate Fellow of the ICA (AFTICA),** Institute of Combinatorics and its Applications (ICA), Canada.

Research Projects and Acquisition of Funds

Project Leader or Principal Investigator (PI)

- SBA-K1 4YE: Area 4 Applied Discrete Mathematics for Information Security.**
04.2021–03.2025 The Austrian Research Promotion Agency (FFG), Austria
Research Area Leader **COMET K1 Program Line: Competence Centers for Excellent Technologies**
✧ Area Volume: 3,965,636 EUR (50% public funding)
✧ Consortium: 8 scientific and 18 industry partners

The research area is comprised of three COMET K1 Projects:

- Design Theory Framework for the Science of Security (100% share of strategic research)
- Combinatorial Arrays, Algorithms and Optimization (100% share of strategic research)
- Combinatorial Security Testing (90% share of strategic research)

DYNAMO

10.2021–09.2024

PI

Combinatorial Interaction Matching with Applications to Security and Data Analysis.

National Institute of Standards and Technology (NIST), US Department of Commerce, USA
Measurement Science and Engineering (MSE) Research Grant Programme

✦ Project Volume: 222,000 USD (100% public funding)

✦ Consortium: SBA Research

SBA-K1: Area 4

04.2017–03.2021

Research Area Leader

Applied Discrete Mathematics for Information Security.

The Austrian Research Promotion Agency (FFG), Austria

COMET K1 Program Line: Competence Centers for Excellent Technologies

✦ Area Volume: 4,707,000 EUR (50% public funding)

The research area is comprised of three COMET K1 Projects:

- ✦ Consortium: 9 scientific and 25 industry partners
- Combinatorics and Codes for Information Security (100% share of strategic research)
- Future Cryptography: Foundations, New Threats and Novel Applications (70% share of strategic research)
- Combinatorial Security Testing (70% share of strategic research)

SENTINEL

10.2018–09.2021

Co-PI

Security Interaction Testing for IoT and Blockchains.

National Institute of Standards and Technology (NIST), US Department of Commerce, USA
Measurement Science and Engineering (MSE) Research Grant Programme

✦ Project Volume: 585,000 USD (100% public funding)

✦ Consortium: University of Texas at Arlington and SBA Research

SecWIT

10.2017–09.2020

Project Leader

Securing Web Technologies with Combinatorial Interaction Testing.

The Austrian Research Promotion Agency (FFG), Austria

BRIDGE Programme

✦ Project Volume: 616,000 EUR (87.39% public funding)

✦ Consortium: SBA Research, Graz University of Technology and Nimbusec GmbH

SPLIT

02.2016–07.2018

Project Leader

Securing Protocol Interaction Testing in Practice.

The Austrian Research Promotion Agency (FFG), Austria

BRIDGE Early Phase Programme

✦ Project Volume: 610,000 EUR (91% public funding)

✦ Consortium: SBA Research, Graz University of Technology, University of Texas at Arlington and Objentis Software Integration GmbH

MoBSeTIP

05.2013–09.2014

Project Leader

Model-based Security Testing in Practice.

The Austrian Research Promotion Agency (FFG), Austria

BRIDGE 1 Programme

✦ Project Volume: 520,000 EUR (85% public funding)

✦ MoBSeTIP won the prestigious **EUREKA-innovation award 2015/16** through its participation to the ITEA2-funded action DIAMONDS

✦ Consortium: SBA Research, Graz University of Technology and Security Research GmbH

CODECRYPT

03.2012–02.2015

PI

Application of Designs and Codes to Cryptography and IT Security.

European Commission (EC) under an FP7 Action, EU

ERCIM Career Development Grant

✦ Project Volume: 75,000 EUR (100% public funding)

✦ Consortium: SBA Research

Project Partner or Participant

ArchitectECA2030	Trustable Architectures with Acceptable Residual Risk for the Electric, Connected and Automated Cars.
05.2020–04.2023	H2020, EU & The Austrian Research Promotion Agency (FFG), Austria
Main Staff Member	<i>ECSEL Joint Undertaking (JU)</i>
	✦ Consortium Leader: Infineon Technologies AG
	✦ Project Share Volume: 218,750 EUR (70% public funding)
	✦ Project Leader for SBA Research
SBA2: Area 3	Secure Coding and Code Analysis.
05.2013–03.2017	The Austrian Research Promotion Agency (FFG), Austria
Senior Researcher	<i>COMET K1 Program Line: Competence Centers for Excellent Technologies</i>
	✦ Consortium Leader: SBA Research
no. 03ED740	High Efficiency Cryptographic Systems and Data Coding for Applications of Secure Information Transmission.
09.2008–10.2018	General Secretariat of Research and Technology, Greece
Research Associate	<i>PENED 2003</i>
	✦ Consortium Leader: University of Athens

Summary of Research Projects (PI or Project Leader only)

- Since 2012, I have led and managed individual and collaborative research projects of total volume about **12 million EUR** from which a sum of about **7 million EUR** has been publicly funded from various organizations (FFG, FP7, H2020, NIST).
- The table below gives a detailed overview of project-funded personnel costs of total volume about **3 million EUR** related only to my **host organization** (excluding travel and other overhead costs).

Project	Funding Agency	Key/Senior/Junior Researchers Funded	Funded Costs (EUR)
SBA-K1 4YE: Area 4	FFG	0.8 / 3 / 5	950,000
DYNAMO	NIST	0.2 / 0.5 / 1	188,000
SBA-K1: Area 4	FFG	0.4 / 1.5 / 2	600,000
SENTINEL	NIST	0.2 / 0.5 / 1	188,000
SecWIT	FFG	0.4 / 1 / 0.5	301,000
SPLIT	FFG	0.33 / 0 / 3	315,000
MoBSeTIP	FFG	0.4 / 0 / 1.5	250,000
CODECRYPT	ERCIM and EU FP7	0 / 0.5 / 0	75,000
ArchitectECA2030	H2020 ECSEL JU and FFG	0.2 / 1 / 1	153,000
Sum		3 / 8 / 12	3,020,000

Research Community Leadership and Academic Scholarly Service

Journal Editorships

- ✦ **Founding Editor and Lead Section Editor**, Springer Nature Computer Science (SNCS) Journal - Section on Combinatorial Methods and Models in System Testing (COMSYT), Springer Nature (2022 – present)
- ✦ *Editorial Board Member*, Mathematics in Computer Science (MCS), Springer (2018 – present)
- ✦ *Associate Editor*, Operational Research Forum (ORFO), Springer Nature (2019 – present)

Guest Editor for Journal Special Issues

1. Dimitris E. Simos, Cristina Seceleanu, Florian Lorber, Angelo Gargantini and Bernhard Garn (eds), **Springer Nature Computer Science**, Section on Combinatorial Methods and Models in System Testing, Special Issue on Advances in Combinatorial and Model-based Testing 2023, in progress.

2. Dimitris E. Simos, Franz Wotawa, Rick Kuhn, Angelo Gargantini, Ilias Kotsireas, Jeff Lei and Raghu Kacker (eds), **Springer Nature Computer Science**, Section on Combinatorial Methods and Models in System Testing, Topical Issue on Combinatorial Testing and its Applications, Continuous Article Publication (CAP), 2024.
URL: https://link.springer.com/journal/42979/topicalCollection/AC_164fbb930ed89c977c5f5a954078435d
3. Ilias S. Kotsireas, Dimitris E. Simos and Ali Kemal Uncu (eds), **Mathematics in Computer Science**, Volume 17 (Revised Selected Papers from ACA 2021), 2023.
DOI: <https://doi.org/10.1007/s11786-023-00557-8>
4. Michela Ceria, Ilias S. Kotsireas, Teo Mora and Dimitris E. Simos (eds), **Applicable Algebra in Engineering, Communication and Computing**, Volume 33 (Revised Selected Papers from ACA 2021), 2022.
DOI: <https://doi.org/10.1007/s00200-022-00587-y>
5. Ilias S. Kotsireas, Panos M. Pardalos and Dimitris E. Simos (eds), **Annals of Mathematics and Artificial Intelligence**, Volume 91 (Revised Selected Papers from LION 2021), 2023.
DOI: <https://doi.org/10.1007/s10472-023-09838-1>
6. Lucia Moura and Dimitris E. Simos (eds), **Electronic Notes in Discrete Mathematics**, Volume 65 (Revised Selected Papers from CAI 2017), 2018.
DOI: <https://doi.org/10.1016/j.endm.2018.02.012>

Steering Committees

- ✧ *Steering Committee Member*, International Conference on Learning and Intelligent Optimization (LION, 2023 – present)
- ✧ **Steering Committee Chair**, International Workshop on Combinatorial Testing (IWCT, 2022 – present)
- ✧ **Steering Committee Chair**, International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS, 2017 – 2019)

Conference and Workshop Organization

1. *Program Co-Chair*, 19th International Conference on Availability, Reliability and Security (ARES 2024, Vienna, Austria)
2. *General Chair*, International Workshop on Dynamic of Disasters: Hybrid Threats (DOD 2024, Vienna, Austria)
3. *Technical Program Co-Chair*, 16th Learning and Intelligent Optimization Conference (LION 2022, Milos Island, Greece)
4. *Organizing Committee*, Symbolic Computation: Algorithms, Learning, and Engineering (SCALE 2022, Gebze, Turkey)
5. *Doctoral Symposium Co-Chair*, 15th International Symposium on Combinatorial Search (SOCS 2022, Vienna, Austria)
6. *Organizer*, Joint NIST/SBA Combinatorial Security Testing Workshop (CST 2022, Virtual, Online)
7. *Technical Program Chair*, 15th Learning and Intelligent Optimization Conference (LION 2021, Virtual, Online)
8. *Program Chair*, Applications of Computer Algebra (ACA 2021, Virtual, Online)
9. *General Chair*, International Workshop on Combinatorial Testing (IWCT 2021, Virtual, Online)
10. *General Chair*, International Workshop on Combinatorial Testing (IWCT 2020, Virtual, Online)
11. *Organizer*, Joint NIST/SBA Combinatorial Security Testing Workshop (CST 2019, Gaithersburg, USA)
12. *Program Co-Chair*, International Workshop on Combinatorial Testing (IWCT 2019, Xian, China)
13. *Program Co-Chair*, International Workshop on Combinatorial Testing (IWCT 2018, Vasteras, Sweden)
14. *General Chair*, 7th International Conference on Mathematical Aspects of Computer and Information Sciences (MACIS 2017, Vienna, Austria)
15. *Program Co-Chair*, International Workshop on Combinatorial Testing (IWCT 2017, Tokyo, Japan)
16. *Organizing Committee*, 7th International Conference on Algebraic Informatics (CAI 2017, Kalamata, Greece)
17. *Publicity Chair*, 4th International Conference on “Dependable Systems and Their Applications (DSA 2017, Beijing, China)
18. *Organizing Committee*, International Workshop on Combinatorial Testing (IWCT 2016, Chicago, USA)
19. *Local Organizing Chair*, 2016 IEEE International Conference on Software Quality, Reliability & Security (QRS 2016, Vienna, Austria)
20. *Organizer*, Joint NIST/SBA Combinatorial Security Testing Workshop (CST 2016, Vienna, Austria)

21. *PhD Symposium Co-Chair*, 20th ACM Symposium on Access Control Models and Technologies (SACMAT 2015, Vienna, Austria)
22. *Organizer*, Joint NIST/SBA Combinatorial Security Testing Workshop (CST 2015, Vienna, Austria)
23. *Co-Organizer*, Minisymposium on Metaheuristic Algorithms for Combinatorial Problems and Engineering Applications (OPTI 2014, Kos Island, Greece)
24. *Workshop Chair*, International Workshop on Modern Cryptography and Security Engineering (MoCrySEn 2013, Regensburg, Germany)
25. *Workshop Chair*, International Workshop on Modern Cryptography and Security Engineering (MoCrySEn 2012, Prague, Czech Republic)

Research Networks and Affiliations

- ✦ *External Staff*, Research Unit of Security and Privacy, Institute of Logic and Computation (ILC), Technische Universität (TU) Wien, Austria (2023–present)
- ✦ *External Staff*, Research Unit of Data Science, Institute of Information Systems Engineering (ISE), Technische Universität (TU) Wien, Austria (2023–present)
- ✦ *Working Group Member*, The Applications of Computer Algebra Working Group (ACA-WG) (2021–present)
- ✦ *Core Team Member*, US NIST Working Group on “Automated Combinatorial Testing for Software (ACTS)” (2015–present)
- ✦ *Management Committee Substitute Member*, EU COST Action IC1403 on “Cryptanalysis of Ubiquitous Computing Systems (CRYPTACUS)” (2014–2018)
- ✦ *Software Module Testing Working Group Member*, US NIST Cryptographic Module Validation Programme (CMVP) (2016–2017)
- ✦ *Management Committee Member*, EU COST Action IC1104 on “Random Network Coding and Designs over GF(q)” (2012–2016)
- ✦ *Expert Member*, ERCIM Expert Group on Security & Privacy (2014–2017)
- ✦ *Collaborator*, Computer Algebra Research Group (CARGO), Wilfrid Laurier University, Canada (2006–present)
- ✦ *Researcher*, Centre de calcul formel MEDICIS, École Polytechnique, France (2006–2011)
- ✦ *Researcher*, Shared Hierarchical Academic Research Computing Network (SHARCnet), Canada (2007–2011)

Research Initiatives

- ✦ *Principal Investigator* for the Vienna CyberSecurity and Privacy (ViSP) Research Cluster, Vienna, Austria (2023–present)
- ✦ *Lead Principal Investigator* for the joint SBA Research and NIST Research Programme on **Applied Discrete Mathematics for Testing, Reliability and Information Security** (Co-PIs: Raghu Kacker (NIST), Rick Kuhn (NIST), Jeff Yu Lei (University of Texas at Arlington), 2020–2025)
- ✦ *Founding Member* for the **Dynamics of Disasters** Institute, Athens, Greece (2022)
- ✦ *Lead Principal Investigator* for the joint SBA Research and NIST Research Programme on **Combinatorial Security Testing** (Co-PIs: Raghu Kacker (NIST), Rick Kuhn (NIST), Jeff Yu Lei (University of Texas at Arlington), 2015–2020)

Program Committees

- ✦ Learning and Intelligent Optimization Conference (LION 17, LION 18)
- ✦ Annual IEEE Conference on Software Technology (STC 2020, STC 2022, STC 2023)
- ✦ World Congress on Global Optimization (WCGO 2021)
- ✦ 30th International Workshop on Combinatorial Algorithms (IWOCA 2019)
- ✦ 8th International Conference on Algebraic Informatics (CAI 2019)
- ✦ International Conference on Dynamics of Disasters (DOD 2017, DOD 2019, DOD 2021)
- ✦ International Workshop on Trust, Security and Privacy for Big Data (BigTrust 2016, BigTrust 2017, BigTrust 2018)
- ✦ 9th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (SpaCCS 2016)

- ✧ International Workshop on Trust, Security and Privacy for Big Data (TrustData 2016, TrustData 2017)
- ✧ 28th International Conference on Testing Software and Systems (ICTSS 2016)
- ✧ 8th International Conference on Advances in System Testing and Validation Lifecycle (VALID 2016)
- ✧ 20th European Symposium on Research in Computer Security (ESORICS 2015)
- ✧ International Workshop on Multimedia Forensics and Security (MFSec 2015)
- ✧ International Workshop on Combinatorial Testing (IWCT 2015)
- ✧ Annual International Conference on Cryptography and Information Security (BalkanCryptSec 2014, BalkanCryptSec 2015)
- ✧ International Workshop on Nature-Inspired Computing and Metaheuristics for Web Intelligence (NiCaM-WI 2012)
- ✧ International Conference on Availability, Reliability and Security (ARES 2012, ARES 2013, ARES 2014, ARES 2015, ARES 2016)
- ✧ International Workshop on Security of Mobile Applications (IWSMA 2012, IWSMA 2013, IWSMA 2014)
- ✧ International Workshop on Nature-Inspired Computing and Metaheuristics (NiCaM 2011)
- ✧ Scientific Symposium on Modern Problems of Applied Electromagnetism (MPAE 2011)

University Committees

- ✧ *Tenure and Promotion Committees Evaluator*, Department of Informatics & Telecommunications, University of Peloponnese, Greece (2017–2022)
- ✧ *Tenure and Promotion Committees Evaluator*, Department of Informatics & Telematics, Harokopio University of Athens, Greece (2017–present)
- ✧ *External Examiner*, M.Sc. Thesis on “A Comparison of Combinatorial and Random Testing for Audio Processing Software” authored by Stephan Valentan and supervised via Prof. Franz Wotawa, Graz University of Technology, Institute for Software Technology, Austria (May 2021)

External Grant Referee

1. Swiss National Science Foundation (SNSF), R’Equip (2023)
2. Swiss National Science Foundation (SNSF), Div. Mathematics, Phys. and Engin. Sciences (2020)
3. Swiss National Science Foundation (SNSF), Div. Mathematics, Phys. and Engin. Sciences (2018)
4. Swiss National Science Foundation (SNSF), Div. Mathematics, Phys. and Engin. Sciences (2014)
5. German Research Foundation (DFG), Collaborative Research Centers Programme (2014)

Journal Referee

1. ACM Computing Surveys (CSUR)
2. ACM Digital Threats: Research and Practice (DTRAP)
3. ACM Transactions on Software Engineering and Methodology (TOSEM)
4. Advances in Software Engineering
5. Annals of Mathematics and Artificial Intelligence (AMAI)
6. Applicable Algebra in Engineering, Communication and Computing (AAECC)
7. Artificial Intelligence Review (AIRE)
8. Australasian Journal of Combinatorics (AJC)
9. Bulletin of the Belgian Mathematical Society
10. Computers & Security (COSE)
11. Designs, Codes and Cryptography (DCC)
12. Discrete Mathematics
13. Engineering Science and Technology, an International Journal

14. Expert Systems with Applications
15. Hacettepe Journal of Mathematics and Statistics
16. IEEE Access
17. IEEE IT Professional
18. IEEE Transactions on Industrial Informatics
19. IEEE Transactions on Information Forensics and Security
20. IEEE Transactions on Reliability (TREL)
21. IEEE Transactions on Software Engineering (TSE)
22. Information and Software Technology (INSOF)
23. Information Sciences
24. International Journal of Bio-Inspired Computation
25. International Journal of Combinatorics
26. International Journal of Computer Mathematics: Computer Systems Theory
27. International Journal of Cryptography and Information Security
28. Linear Algebra and its Applications (LAA)
29. Journal of Algebraic Combinatorics (JACO)
30. Journal of Applied Statistics
31. Journal of Applied Probability and Statistics
32. Journal of Combinatorial Designs (JCD)
33. Journal of Computational Science
34. Journal of Internet Technology
35. Journal of Mathematical Cryptology
36. Journal of Network and Computer Applications
37. Journal of Statistics Applications & Probability
38. Journal of Systems and Software (JSS)
39. Journal of Wireless Mobile Networks, Ubiquitous Computing, and Dependable Applications
40. Mathematics in Computer Science (MCS)
41. Neural Computing and Applications
42. Operations Research Forum (ORFO)
43. Optimization Letters (OPTL)
44. Optimization Methods and Software (OMS)
45. Recent Patents on Engineering
46. Software Testing, Verification and Reliability (STVR)
47. Theoretical Computer Science (TCS)

Conference & Workshop Referee (without PC Memberships)

- ✦ 32nd IFIP International Conference on ICT Systems Security and Privacy Protection (IFIPSec2017)
- ✦ 12th International Wireless Communications & Mobile Computing Conference (IWCMC2016)
- ✦ 30th IFIP International Conference on ICT Systems Security and Privacy Protection (IFIPSec2015)
- ✦ 3rd International Workshop on Security in Cloud Computing (AsiaCCS-SCC2015)
- ✦ 19th Annual International Conference on the Theory and Application of Cryptology and Information Security (ASIACRYPT 2013)

- ✧ 20th ACM Conference on Computer and Communications Security (ASIACRYPT 2013)
- ✧ 11th International Conference on Finite Fields and their Applications (Fq11)
- ✧ 5th International Conference on Post-Quantum Cryptography (PQCrypto2013)
- ✧ 8th International Workshop on Coding Theory and Cryptography (WCC2013)
- ✧ 10th International Symposium on Experimental Algorithms (SEA11)

Reviewer

- ✧ AMS Mathematical Reviews (MR)
- ✧ Zentralblatt MATH Reviews (ZB-MATH)
- ✧ Elsevier Insights e-book series (Elsevier)

Professional Societies

1. Austrian Computer Society (OCG); Member (2024–present)
2. Institute of Combinatorics and its Applications (ICA); Associate Fellow (2010–2012), **Fellow** (2012–present)
3. IEEE Information Theory Society (ITSOC); Graduate Student Member (2009–2011), Member (2011–present)
4. IEEE Reliability Society (RELSOC); Member (2015–present)
5. IEEE Communications Society (COMSOC); Graduate Student Member (2010–2011), Member (2011–present)
6. IEEE Computer Society (COMPSOC); Member (2011–present)
7. Machine Intelligence Research (MIR) Labs; Regular Member (2012–present)
8. Hellenic Mathematical Society (HMS); Member (2006–2011)

Research Community Leadership and Academic Scholarly Service Summary

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Research community leadership achievements and academic scholarly accomplishments last updated on March 2024.

Research Visits and Stays Abroad

- **National Institute of Standards and Technology (NIST)**, *Information Technology Laboratory, Computer Security & Applied and Computational Mathematics Divisions*, Gaithersburg, USA, May 2019.
(Contacts: Rick Kuhn, Raghu Kacker and Jeff Voas)
- **INRIA**, *Project-Team SECRET*, Paris, France, February 2019.
(Contact: Nicolas Sendrier)
- **IBM Research**, *Haifa Research Lab*, Haifa, Israel, November 2017.
(Contact: Rachel-Tzoref Brill)
- **University of Bergamo**, *Department of Management, Information and Production Engineering*, Bergamo, Italy, May–June 2017.
(Contact: Angelo Gargantini)

- **Graz University of Technology**, *Institute for Software Technology*, Graz, Austria, March 2017.
(Contact: Franz Wotawa)
- **Graz University of Technology**, *Institute for Software Technology*, Graz, Austria, June 2016.
(Contact: Franz Wotawa)
- **Johannes Kepler University**, *Research Institute for Symbolic Computation*, Linz, Austria, February 2016.
(Contact: Temur Kutsia)
- **National Institute of Standards and Technology (NIST)**, *Information Technology Laboratory, Computer Security Division*, Gaithersburg, USA, November 2015.
(Contact: Rick Kuhn)
- **University of Texas at Dallas**, *Department of Computer Science*, Dallas, USA, September 2015.
(Contact: Eric Wong)
- **University of Texas at Arlington**, *Department of Computer Science and Engineering*, Arlington, USA, September 2015.
(Contact: Jeff Yu Lei)
- **National Institute of Standards and Technology (NIST)**, *Information Technology Laboratory, Mathematical and Computational Sciences Division*, Gaithersburg, USA, September 2015.
(Contact: Raghu Kacker)
- **INRIA**, *Project-Team SECRET*, Paris, France, July 2015.
(Contact: Nicolas Sendrier)
- **INRIA**, *Project-Team SECRET*, Paris, France, September 2014.
(Contact: Nicolas Sendrier)
- **INRIA**, *Project-Team SECRET*, Paris, France, February 2014.
(Contact: Nicolas Sendrier)
- **Graz University of Technology**, *Institute for Software Technology*, Graz, Austria, November 2013.
(Contact: Franz Wotawa)
- **INRIA**, *Project-Team SECRET*, Paris, France, June–July 2013.
(Contact: Nicolas Sendrier)
- **Graz University of Technology**, *Institute for Software Technology*, Graz, Austria, May 2013.
(Contact: Franz Wotawa)
- **University of Rouen**, *LITIS Lab*, Rouen, France, February 2013.
(Contact: Ayoub Otmani)
- **INRIA**, *Project-Team SECRET*, Paris, France, January 2012.
(Contacts: Canteaut and Nicolas Sendrier)
- **SBA Research**, Vienna, Austria, November 2011.
(Contacts: Peter Kieseberg and Edgar Weippl)
- **Johannes Kepler University**, *Research Institute for Symbolic Computation*, Linz, Austria, March 2011.
(Contact: Veronika Pillwein, Temur Kutsia and Zafeirakis Zafeirakopoulos)
- **Veliko Tarnovo University**, *Department of Mathematics & Informatics*, Bulgaria, March 2011.
(Contact: Zlatko Varbanov)
- **Johannes Kepler University**, *Research Institute for Symbolic Computation*, Linz, Austria, August 2010.
(Contact: Veronika Pillwein and Zafeirakis Zafeirakopoulos)

University Teaching Experience

1. Teaching History:

- 03.2021–present: **Associate Professor (Privatdozent)**, Graz University of Technology, Faculty of Computer Science and Biomedical Engineering, Institute for Software Technology, Austria.
- 03.2017–02.2021: **Visiting Lecturer**, Graz University of Technology, Faculty of Computer Science and Biomedical Engineering, Institute for Software Technology, Austria.
- 03.2014–09.2020: **Adjunct Lecturer (Universitätslektor)**, TU Wien, Faculty of Informatics, Institute of Information Systems Engineering, Austria.

Course	Title	University	Times Taught
VU 716.204	Selected Topics of Software Technology: Quantum Computing (Lectures and Exercises)	TU Graz	2
VO 716.201	Selected Topics in Computer Science: Combinatorial Testing (Lectures)	TU Graz	5
UE 716.202	Selected Topics in Computer Science: Combinatorial Testing (Exercises)	TU Graz	5
VU 188.916	Introduction to Security (Lectures and Exercises)	TU Wien	6
VU 188.959	Software Security (Lectures and Exercises)	TU Wien	7

2. Curriculum Development:

(i) As sole lecturer, I have organized, designed from scratch the course curriculum and handled all aspects of a graduate course on quantum computing (*Selected Topics of Software Technology: Quantum Computing*, Graz University of Technology (2022S, 2023S)).

(ii) As sole lecturer, I have organized, designed from scratch the course curriculum and handled all aspects of a graduate course on combinatorial testing (*Selected Topics in Computer Science: Combinatorial Testing*, Graz University of Technology (2017S, 2018W, 2018S, 2021S, 2022S)).

(iii) As head lecturer, I have redesigned the course curriculum and coordinated exams together with exercises for undergraduate (*Introduction to Security*, TU Wien (2014W, 2015S, 2015W, 2016S, 2016W, 2017S)) and graduate courses on topics of information security (*Software Security*, TU Wien (2014S, 2015S, 2016S, 2017S, 2018S, 2019S, 2020S)).

Student Supervision

- Since 2014, I have supervised or I am currently advising 8 Bachelor, 11 Master and 3 PhD students at Public Universities (TU Wien, Faculty of Informatics; TU Wien, Faculty of Mathematics and Geoinformation; University of Vienna, Faculty of Informatics) and Universities of Applied Sciences (FH Campus Wien, FH St. Pölten) on various topics of Discrete Mathematics and their applications to Computational Science (e.g. Computer Algebra, Mathematical Modelling and Disaster Management) and Computer Science (e.g. Software Engineering, Cryptography and Information Security).
- **Disclaimer:** After 2021 due to my *venia docendi* (teaching license) in Applied Computer Science, I have always acted as the main or sole supervisor without special permission from the respective Dean of Studies or Academic Affairs.

✧ Doctoral Student Supervisor:

TU Wien, Faculty of Informatics:

1. Bernhard Garn, *Design Theory Methods and their Application to the Science of Security*, Ph.D. Thesis, October 2023.
2. Ludwig Kampel, *Combinatorial Matrix Theory and Software Testing*, Ph.D. Thesis, submitted for defense.
3. Manuel Leithner, *Advancing Combinatorial Testing and Reverse Engineering Methods for Protocol Security*, Ph.D. Thesis, pending proficiency evaluation.

✧ Postgraduate Scholar Supervisor:

TU Wien, Faculty of Informatics¹:

1. Jovan Zivanovic, *SQL-injection Detection via Machine Learning*, Diploma Thesis (equiv. to M.Sc.), in progress.
2. Dominik-Philipp Schreiber, *Next generation Protocol Testing using Combinatorial Methods*, Diploma Thesis (equiv. to M.Sc.), in progress.
3. Irene Hiess, *Exact Methods for Covering Array Generation*, Diploma Thesis (equiv. to M.Sc.), March 2024.
4. Markus Fugger, *Input Models for Combinatorial Testing using Source Annotations*, Diploma Thesis (equiv. to M.Sc. co-advised with Edgar Weippl), October 2023.
5. Kristoffer Kleine, *Efficient Algorithms and Tools for Practical Combinatorial Testing*, Diploma Thesis (equiv. to M.Sc.), June 2018.
6. Martin Kirchner, *On the Applicability of Secret-sharing Cryptography in Secure Cloud Services*, Diploma Thesis (equiv. to M.Sc., co-advised with Edgar Weippl), March 2014.

TU Wien, Faculty of Mathematics and Geoinformation²:

1. Bernhard Garn, *Algebraic Methods for Experimental Design Theory*, Diploma Thesis (equiv. to M.Sc.), March 2019.

¹Special permission granted to act as the main diploma thesis supervisor (for Kristoffer Kleine) from the Dean of Academic Affairs, Assoc. Prof. Hilda Telliglu

²Special permission granted to act as the main diploma thesis supervisor from the Dean of Studies, Prof. Dr. Günther Karigl

2. Ludwig Kampel, *Combinatorial and Algorithmic Constructions of Covering Arrays*, Diploma Thesis (equiv. to M.Sc.), March 2018.

*FH Campus Wien, University of Applied Sciences*³:

1. Stefan Zauner, *Browser Fingerprinting using TLS Sequences obtained via Combinatorial Methods*, M.Sc. in Engineering Thesis, October 2019.
2. Fabian Würfl, *Combinatorial Testing of the Linux Kernel with Applications to Computer Security*, M.Sc. in Engineering Thesis, February 2018.

*FH St. Pölten, University of Applied Sciences*⁴:

1. Manuel Leithner, *Reverse Engineering for Input Modeling: Model Inference from Traffic Traces*, M.Sc. in Information Security Thesis, July 2022.

✧ Bachelor Thesis Advisor:

TU Wien, Faculty of Informatics:

1. Christoph Wech, *Automated Reverse Engineering of CAN Frames using Combinatorial Testing*, B.Sc. Thesis (co-advised with Edgar Weippl), September 2023.
2. Dominik-Philipp Schreiber, *XSS Vulnerability Testing for E-Mail Security using Combinatorial Methods*, B.Sc. Thesis, November 2020.
3. Daniel Lang, *Web Application Firewall Testing using Combinatorial Methods*, B.Sc. Thesis, November 2020.
4. Jovan Zivanovic, *Web Application Security Testing for SQL Injections using Combinatorial Methods*, B.Sc. Thesis, January 2019.
5. Kristoffer Kleine, *Combinatorial Methods for Testing Certificates*, B.Sc. Thesis (co-advised with Edgar Weippl), March 2016.

TU Wien, Faculty of Mathematics and Geoinformation:

1. Peter Stadlmann, *Combinatorial Methods for Group Testing*, B.Sc. Thesis, in progress.

University of Vienna, Faculty of Informatics:

1. Sebastian Georg Dumbs, *OCTOPUS: A Web-based Framework for Integration of several Combinatorial Security Testing Tools*, B.Sc. Thesis, June 2021.

FH St. Pölten, University of Applied Sciences:

1. Manuel Leithner, *Covering Array Generation. Algorithms and Implementations*, B.Sc. in Engineering Thesis, August 2020.

✧ Undergraduate Research:

SBA Research:

- I am regularly mentoring and advising research-focused internships with the goal to facilitate the trainee's first steps as junior researchers, where most of them have joined afterwards my research group.
- To date, I have acted as a supervisor for 15 research interns (7 under the FemTech program for female researchers in mathematics and IT) where the technical results of the individual research collaborations led to the publication of 11 scientific papers.

Invited Talks and Lectures

- ▶ Since 2011, I have given 33 invited talks and lectures (of which 14 were externally funded) at scientific conferences, public and private universities, research and governmental organizations on various topics of Discrete Mathematics and their applications to Computational Science (e.g. Computer Algebra, Mathematical Modelling and Disaster Management) and Computer Science (e.g. Software Engineering, Cryptography and Information Security).
- ▶ In particular, I have given 10 invited conference talks, 13 invited university lectures and 10 invited science outreach talks in various events taking place in Austria, Greece, Israel, Bulgaria, Italy, France, Philippines, and USA.

³FH Campus Wien allows external Ph.D. holders to act as a master thesis supervisor

⁴FH St. Pölten allows external Ph.D. holders to act as a master thesis supervisor

Invited Conference Talks

1. **Plenary Talk (funded)** at the UNCTAD-PH-US Workshop on harnessing science, technology and innovation (STI) for disaster risk reduction (DRR), "A Combinatorial STI Solution for a Disaster Management Framework towards Stakeholder Engagement", February 29, 2024, Metro Manila, Philippines.
2. **Plenary Talk (funded)** at the 6th International Conference on Dynamics of Disasters (DOD), "Disaster scenarios with discrete sequences: Using combinatorics for enhanced disaster preparedness" (with B Garn and K Kieseberg), July 4, 2023, Laskaridis Foundation, Piraeus, Greece.
3. Conference Tutorial at the 16th Learning and Intelligent Optimization (LION) Conference, "Crops, Tuples and Disasters" (with B Garn and K Kieseberg), June 9, 2022, Milos Conference Center, Milos Island, Cyclades, Greece.
4. Conference Tutorial at Defense and Aerospace Test and Analysis (DATA) Workshop sponsored by NASA and IDA, "Combinatorial Methods for Testing and Analysis of Critical Software and Security Systems" (with R Kuhn and RN Kacker), April 11, 2019, Waterford at Springfield, Springfield, VA, USA.
5. Session Talk at International Symposium on Business and Industrial Statistics (ISBIS), "Combinatorial Testing Methods and Algorithms for Detecting Cryptographic Trojans", July 4, 2018, University of Piraeus, Piraeus, Greece.
6. Conference Tutorial at Hot Topics in the Science of Security: Symposium and Bootcamp (HotSoS) sponsored by NSA, "Combinatorial Security Testing Course" (with R Kuhn), April 10, 2018, North Carolina State University Campus, Raleigh, NC, USA.
7. Conference Tutorial at the 13th Haifa Verification Conference, "Combinatorial Security Testing: Quo Vandis?", November 13, 2017, IBM Research Haifa, Haifa, Israel.
8. Conference Tutorial at the 2016 IEEE International Conference of Software, Quality, Reliability & Security (QRS), "Combinatorial Security Testing" (with R Kuhn, Y Lei and RN Kacker), August 1, 2016, TU Wien, Vienna, Austria.
9. Session Talk (funded) at the 2014 Security Forum Hagenberg, "The Mathematics behind an Automated Penetration Testing Framework", April 9, 2014, University of Applied Sciences Upper Austria, Hagenberg Campus, Austria.
10. **Plenary Talk (funded)** at the 2011 Scientific Symposium on Modern Problems of Applied Electromagnetism, "Encryption Schemes from Orthogonal Matrices and Related Cryptanalysis", March 25, 2011, National Military University (NMU) "Vassil Levski", Veliko Tarnovo, Bulgaria.

Invited University Lectures

1. **Habilitation Teaching Lecture** at Graz University of Technology, Institute for Applied Information Processing and Communications (IAIK), "Foundations of Artificial Intelligence: Constraint Satisfaction Problems", September 29, 2020, Graz, Austria.
2. **Habilitation Colloquium Talk** at Graz University of Technology, Institute of Software Technology (IST), "Combinatorial Methods for Secure Software Quality Assurance", June 20, 2017, Graz, Austria.
3. Colloquium Talk (funded) at University of Bergamo, Department of Management, Information and Production Engineering (DEGLI), "Combinatorial Methods and Algorithms in Security Testing", June 1, 2017, Bergamo, Italy.
4. Seminar Lecture (funded) as part of the Software Testing and Verification Course at University of Bergamo, Department of Management, Information and Production Engineering (DEGLI), "Combinatorial Methods and Related Modelling Techniques in Testing", May 31, 2017, Bergamo, Italy.
5. Colloquium Talk at TU Wien, Institute of Software Technology and Interactive Systems (ISIS), "Improving the Quality Assurance of Secure Software through Combinatorial Methods", January 17, 2017, Vienna, Austria.
6. Colloquium Talk at Graz University of Technology, Institute of Software Technology (IST), "Combinatorial Methods for Quality Assurance of Secure Software: Recent Results and Challenges Ahead", June 20, 2016, Graz, Austria.
7. Colloquium Talk at Johannes Kepler University, Research Institute for Symbolic Computation (RISC), "Information Security through Combinatorial Designs and Symbolic Computation: Recent Results and Challenges Ahead", April 4, 2016, Hagenberg, Austria.
8. Guest Lecture (funded) as part of a Software Engineering Seminar at University of Texas at Arlington, Department of Computer Science and Engineering, "Algebraic Modelling of Covering Arrays", September 24, 2015, Arlington, TX, USA.
9. Guest Lecture (funded) as part of a Cryptography Seminar at Graz University of Technology, Institute for Applied Information Processing and Communications (IAIK), "A Bird's-Eye View of Code-based Cryptography", September 18, 2013, Graz, Austria.

10. Seminar Lecture as part of the POLSYS Seminar at Université Pierre et Marie Curie 06 (UPMC), LIP6, “Symbolic Computation for Orthogonal Designs”, February 15, 2013, Paris, France.
11. Seminar Lecture (funded) as part of the Combinatorics and Algorithms Seminar at University of Rouen, LITIS, “On the Hardness of Code Equivalence over \mathbb{F}_q ”, February 14, 2013, Campus du Madrillet, Rouen, France.
12. Seminar Lecture as part of the Algorithmic Combinatorics Seminar at Johannes Kepler University, Research Institute for Symbolic Computation (RISC), “Efficient Algorithms for Compatible Sequences, Complexity Analysis and Related Problems”, March 30, 2011, Hagenberg, Austria.
13. Seminar Lecture (funded) as part of the Mathematical Foundations of Informatics Seminar at Veliko Tarnovo University (VTU) “St. Cyril and St. Methodius”, Department of Mathematics and Informatics, “Construction Methods of Optimal Codes from Combinatorial Designs”, March 24, 2011, Veliko Tarnovo, Bulgaria.

Invited Science Outreach Talks

1. Seminar Lecture at the International Institute for Applied Systems Analysis (IIASA), “Using Combinatorial Scenarios to Advance Disaster Preparedness for Natural and Technological Hazards”, April 8, 2024, Laxenburg, Austria.
2. World Cafe Presentation (funded) at the UNCTAD-PH-US Workshop on harnessing science, technology and innovation (STI) for disaster risk reduction (DRR), “Using Combinatorial Scenarios to Advance Disaster Preparedness for Natural and Technological Hazards”, March 1, 2024, Metro Manila, Philippines.
3. Session Talk at the SummitUp Special, Key Researcher Talk Series hosted by SBA Research, “Combinatorial Testing Methods and Algorithms for Detecting and Locating Cryptographic Trojans”, May 31, 2021, Virtual, Online.
4. Session Talk at the European Research Consortium for Informatics & Mathematics (ERCIM) Fall 2015 Meeting, “Combinatorial Security Testing: Advancing Information Security through Combinatorial Testing”, October 12, 2015, SBA Research, Vienna, Austria.
5. Colloquium Talk (funded) at the Computer Science Colloquium in conjunction with the IEEE Reliability Society Fall 2015 Student Outreach, University of Texas at Dallas, Department of Computer Science, “Combinatorial Security Testing: Improving Information Security through Combinatorial Testing”, September 25, 2015, Dallas, TX, USA.
6. Seminar Lecture (funded) as part of the Applied and Computational Mathematical Division Seminar Series at US National Institute of Standards and Technology (NIST), Information Technology Laboratory (ITL), “Combinatorial Security Testing: Combinatorial Testing meets Information Security”, September 22, 2015, Gaithersburg, MD, USA.
7. Guest Lecture as part of a Cryptography Seminar at the Austrian Institute of Technology (AIT), Safety and Security Department, “An Overview of Code-based Cryptography”, December 5, 2013, Vienna, Austria.
8. Colloquium Talk at the Colloquium “Cryptography and its Applications in the Armed Forces”, Hellenic Military Academy (HMA) “Evelpidon”, “Families of Block Ciphers from Combinatorial Designs”, April 6, 2012, Vari, Greece.
9. Guest Lecture (funded) as part of an Information Security Seminar at SBA Research, “A Bird’s-Eye View of Optimal Codes and Symmetric Cryptography from Combinatorial Designs”, November 16, 2011, Vienna, Austria.
10. Colloquium Talk at the Colloquium “Applications of Mathematics and Informatics in Military Sciences”, Hellenic Military Academy (HMA) “Evelpidon”, “Private-key Cryptosystems from Combinatorial Designs”, April 12, 2011, Vari, Greece.

Collaborators and Other Affiliations

Selected Collaborators and Co-Editors

F Wotawa	Graz University of Technology, <i>Professor</i> , Austria.
RN Kacker	National Institute of Standards and Technology (NIST), <i>Senior Scientist</i> , USA.
R Kuhn	National Institute of Standards and Technology (NIST), <i>Senior Scientist</i> , USA.
IS Kotsireas	Wilfrid Laurier University, <i>Professor</i> , Canada.
Y Lei	University of Texas at Arlington, <i>Professor</i> , USA.
CJ Colbourn	Arizona State University, <i>Professor</i> , USA.
T Kutsia	Johannes Kepler University, <i>Associate Professor</i> , Austria.
V Pillwein	Johannes Kepler University, <i>Associate Professor</i> , Austria.
S Magliveras	Florida Atlantic University, <i>Emeritus Professor</i> , USA.
R Tzoref-Brill	IBM Research, <i>Research Staff Member</i> , Israel.
A Gargantini	University of Bergamo, <i>Professor</i> , Italy.
P Kitsos	University of the Peloponnese, <i>Associate Professor</i> , Greece.
P Pardalos	University of Florida, <i>Distinguished Professor</i> , USA.
E Wong	University of Texas at Dallas, <i>Professor</i> , USA.
AM Tjoa	TU Wien, <i>Emeritus Professor</i> , Austria.
L Moura	University of Ottawa, <i>Professor</i> , Canada.
J Bloemer	Paderborn University, <i>Professor</i> , Germany.

Postdoctoral Sponsors

N Sendrier	INRIA Paris-Rocquencourt, <i>Research Director</i> , France.
E Weippl	SBA Research, <i>Research Director</i> , Austria; University of Vienna, <i>Professor</i> , Austria.

PhD Advisor

C Koukouvinos	National Technical University of Athens, <i>Professor</i> , Greece.
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Publications

- Since 2006, I have (co)-authored 151 publications on various topics of Discrete Mathematics and their applications to Computer Science, e.g. Software Engineering, Cryptography and Information Security and recently to Computational Science, e.g. Computer Algebra, Mathematical Modelling and Disaster Management.
- In particular, I have authored 3 academic theses, (co)-edited 6 books and (co)-authored 5 book chapters, 56 journal papers, 59 conference and workshop papers, 20 papers in other conference proceedings and 2 technical reports or magazine articles.
- **Disclaimer:** For the following publication list up to 2015 an “alphabetical order” author policy has been used. From 2016 till today for publications within the field of Applied Computer Science a “first author” author policy has been enforced, while for publications in the area of the Mathematics and Theoretical Computer Science the “alphabetical order” author policy remains in effect.

Academic Theses

1. Simos, DE (2020). “Combinatorial Methods and Algorithms for Secure Software Quality Assurance”. Professorial Dissertation (Habilitation thesis). Graz University of Technology.
2. Simos, DE (2011). “Combinatorial Design Theory, Coding Theory and Cryptography”. PhD thesis. National Technical University of Athens.
3. Simos, DE (2007). “Orthogonal Designs, Self-Dual Codes and their Applications to Cryptography”. MA thesis. National Technical University of Athens.

Edited Books

1. Simos, DE, VA Rasskazova, F Archetti, IS Kotsireas, and PM Pardalos, eds. (2022). *Learning and Intelligent Optimization, 16th International Conference, LION 16, Revised Selected Papers*. Vol. 13621. Lecture Notes in Computer Science. Berlin: Springer, 564 pp.
2. Garn, B, L Kampel, IS Kotsireas, M Wester, and DE Simos, eds. (2021). *Applications of Computer Algebra, 26th International Conference, ACA 2021, Book of Abstracts*. online, 257 pp.
3. Simos, DE, IS Kotsireas, and PM Pardalos, eds. (2021). *Learning and Intelligent Optimization, 15th International Conference, LION 15, Revised Selected Papers*. Vol. 12931. Lecture Notes in Computer Science. Berlin: Springer, 423 pp.

- Blömer, J, IS Kotsireas, T Kutsia, and DE Simos, eds. (2017). *Mathematical Aspects of Computer and Information Sciences, 7th International Conference, MACIS 2017, Proceedings*. Vol. 10693. Lecture Notes in Computer Science. Berlin: Springer, 462 pp.
- Cuzzocrea, A, C Kittl, DE Simos, E Weippl, and L Xu, eds. (2013). *Availability, Reliability, and Security in Information Systems and HCI, IFIP WG 8.4, 8.9, TC 5 International Cross-Domain Conference, CD-ARES 2013*. Vol. 8127. Lecture Notes in Computer Science. Berlin: Springer, 466 pp.
- Cuzzocrea, A, C Kittl, DE Simos, E Weippl, and L Xu, eds. (2013). *Security Engineering and Intelligence Informatics, CD-ARES 2013 Workshops: MoCrySEn and SeCIHD*. Vol. 8128. Lecture Notes in Computer Science. Berlin: Springer, 466 pp.

Book Chapters

- Garn, B, K Kieseberg, C Culha, M Koelbing, and DE Simos (2023). A Mathematical Approach on the use of Integer Partitions for Smurfing in Cryptocurrencies. In: *MARBLE '23: Mathematical Research for Blockchain Economy, Lecture Notes in Operations Research*, pp.169–177.
- Garn, B, K Kieseberg, D Schreiber, and DE Simos (2021). Cyber Crises and Disaster Preparation in Austria: A Survey of Research Projects. In: *DOD '19: Dynamics of Disasters, Springer Optimization and its Applications*. Vol. 169, pp.109–121.
- Garn, B and DE Simos (2017). Algebraic Modelling of Covering Arrays. In: *ACA '15: Applications of Computer Algebra, Springer Proceedings in Mathematics and Statistics*. Vol. 198, pp.149–170.
- Simos, DE (2015). Genetic Algorithms for the Construction of 2^2 and 2^3 -level Response Surface Designs. In: *OPT-i '14: Engineering and Applied Sciences Optimization, Computational Methods in Applied Sciences*. Vol. 38, pp.207–215.
- Koukouvinos, C and DE Simos (2012). A Bird's Eye View of Modern Symmetric Cryptography from Combinatorial Designs. In: *AMIMS '11: Applications of Mathematics and Informatics in Military Science, Springer Optimization and its Applications*. Vol. 71, pp.189–219.

Papers in Refereed Journals

- Hiess, I, L Kampel, and DE Simos (2024). Optimal ordered covering arrays via an exact algorithm. *Bulletin of the ICA*, to appear.
- Leithner, M, A Bombarda, M Wagner, A Gargantini, and DE Simos (2024). State of the CArt: Evaluating Covering Array generators at scale. *International Journal on Software Tools for Technology Transfer*, to appear.
- Celic, B, K Kieseberg, B Garn, and DE Simos (2023). Disaster Incident Analysis via Algebra Stories. *Mathematics in Computer Science*, tentatively accepted.
- Dougherty, RE, K Kleine, M Wagner, CJ Colbourn, and DE Simos (2023). Algorithmic methods for covering arrays of higher index. *Journal of Combinatorial Optimization* **45**, Article 28.
- Garn, B, K Kieseberg, D Schreiber, and DE Simos (2023). Combinatorial Sequences for Disaster Scenario Generation. *Operations Research Forum* **4**, Article 50.
- Kampel, L, I Hiess, IS Kotsireas, and DE Simos (2023). Balanced covering arrays: A classification of covering arrays and packing arrays via exact methods. *Journal of Combinatorial Designs* **31**, 205–261.
- Koelbing, M, B Garn, E Iurlano, IS Kotsireas, and DE Simos (2023). Algebraic and SAT models for SCA generation. *Applicable Algebra in Engineering, Communication and Computing*, to appear.
- Garn, B, D Schreiber, DE Simos, R Kuhn, J Voas, and R Kacker (2022). Combinatorial methods for testing Internet of Things smart home systems. *Software Testing, Verification and Reliability* **32**, Article e1805.
- Garn, B, S Zauner, DE Simos, M Leithner, R Kuhn, and R Kacker (2022). A Two-Step TLS-Based Browser fingerprinting approach using combinatorial sequences. *Computers and Security* **114**, Article 102575.
- Garn, B, J Zivanovic, M Leithner, and DE Simos (2022). Combinatorial methods for dynamic gray-box SQL injection testing. *Software Testing, Verification and Reliability* **32**, Article e1826.
- Kacker, RN, DR Kuhn, Y Lei, and DE Simos (2022). Measuring the Adequacy of a Test Suite With Respect to a Modeled Test Space. *IEEE Software* **39**, 62–67.
- Kampel, L, P Kitsos, and DE Simos (2022). Locating Hardware Trojans Using Combinatorial Testing for Cryptographic Circuits. *IEEE Access* **10**, 18787–18806.
- Kampel, L, DE Simos, DR Kuhn, and RN Kacker (2022). An exploration of combinatorial testing-based approaches to fault localization for explainable AI. *Annals of Mathematics and Artificial Intelligence* **90**, 951–964.

14. Kampel, L, M Wagner, IS Kotsireas, and DE Simos (2022). A Primer on the Application of Neural Networks to Covering Array Generation. *Optimization Methods and Software* **37**, 1165–1202.
15. Wagner, M, CJ Colbourn, and DE Simos (2022). In-Parameter-Order strategies for covering perfect hash families. *Applied Mathematics and Computation* **421**, Article 126952.
16. Kacker, RN, DR Kuhn, Y Lei, and DE Simos (2021). Factorials Experiments, Covering Arrays, and Combinatorial Testing. *Mathematics in Computer Science* **15**, 715–739.
17. Leithner, M, B Garn, and DE Simos (2021). HYDRA: Feedback-driven black-box exploitation of injection vulnerabilities. *Information and Software Technology* **140**, Article 106703.
18. Leithner, M and DE Simos (2021). CHIEv: Concurrent Hybrid Analysis for Crawling and Modeling of Web Applications. *Applied Computing Review* **21**, 5–23.
19. Kampel, L, M Leithner, and DE Simos (2020). Sliced AETG: A Memory-efficient Variant of the AETG Covering Array Generation Algorithm. *Optimization Letters* **14**, 1543–1556.
20. Kotsireas, I, T Kutsia, and DE Simos (2020). Constructing Orthogonal Designs in Powers of Two via Symbolic Computation and Rewriting Techniques. *Annals of Mathematics and Artificial Intelligence* **88**, 213–236.
21. Kuhn, DR, RN Kacker, Y Lei, and DE Simos (2020). Input Space Coverage Matters. *IEEE Computer* **53**, 37–44.
22. Kampel, L, M Leithner, B Garn, and DE Simos (2019). Problems and Algorithms for Covering Arrays via Set Covers. *Theoretical Computer Science* **800**, 90–106.
23. Kampel, L and DE Simos (2019). A Survey on the State of the Art of Complexity Problems for Covering Arrays. *Theoretical Computer Science* **800**, 107–124.
24. Simos, DE, J Bozic, B Garn, M Leithner, F Duan, K Kleine, Y Lei, and F Wotawa (2019). Testing TLS using planning-based combinatorial methods and execution framework. *Software Quality Journal* **27**, 703–729.
25. Garn, B and DE Simos (2018). Algebraic Techniques for Covering Arrays and related Structures. *Electronic Notes in Discrete Mathematics* **70**, 49–54.
26. Garn, B and DE Simos (2018). Weighted t-way sequences. *Electronic Notes in Discrete Mathematics* **70**, 43–48.
27. Kampel, L, B Garn, and DE Simos (2018). Covering Arrays via Set Covers. *Electronic Notes in Discrete Mathematics* **65**, 11–16.
28. Kleine, K and DE Simos (2018). An Efficient Design and Implementation of the In-Parameter-Order Algorithm. *Mathematics in Computer Science* **12**, 51–67.
29. Simos, DE, R Kuhn, AG Voyiatzis, and R Kacker (2016). Combinatorial methods in security testing. *IEEE Computer* **49**, 40–43.
30. Parpoula, C, C Koukouvinos, DE Simos, and S Stylianou (2014). Supersaturated plans for variable selection in large databases. *Statistics, Optimization & Information Computing* **2**, 161–175.
31. Angelopoulos, P, C Koukouvinos, DE Simos, and A Skountzou (2013). Mixed-level Response Surface Designs via a Hybrid Genetic Algorithm. *Journal of Statistics, Applications & Probability* **2**, 1–7.
32. Koukouvinos, C and DE Simos (2013). Encryption schemes based on Hadamard matrices with circulant cores. *Journal of Applied Mathematics & Bioinformatics* **3**, 17–41.
33. Kotsireas, IS, C Koukouvinos, PM Pardalos, and DE Simos (2012). Competent Genetic Algorithms for Weighing Matrices. *Journal of Combinatorial Optimization* **24**, 508–525.
34. Koukouvinos, C and DE Simos (2012). Encryption Schemes from Williamson Matrices. *Journal of Information Assurance and Security* **7**, 252–258.
35. Kotsireas, IS, C Koukouvinos, and DE Simos (2011). A Meta-software system for orthogonal designs and Hadamard matrices. *Journal of Applied Mathematics & Informatics* **29**, 1571–1581.
36. Koukouvinos, C, K Mylona, and DE Simos (2011). An Algorithmic Construction of $E(s^2)$ -optimal Supersaturated Designs. *Journal of Statistical Theory and Practice* **5**, 357–367.
37. Koukouvinos, C, V Pillwein, DE Simos, and Z Zafeirakopoulos (2011). On the Average Complexity for the Verification of Compatible Sequences. *Information Processing Letters* **111**, 825–830.
38. Koukouvinos, C and DE Simos (2011). Encryption schemes using Plotkin arrays. *Applied Mathematics & Information Sciences* **5**, 500–510.
39. Koukouvinos, C and DE Simos (2011). Further results on ternary complementary sequences, orthogonal designs and weighing matrices. *The Australasian Journal of Combinatorics* **50**, 97–112.
40. Koukouvinos, C and DE Simos (2011). On the Computation of the Non-Periodic Autocorrelation Function of Two Ternary Sequences and its Related Complexity Analysis. *Journal of Applied Mathematics & Informatics* **29**, 547–562.

41. Koukouvinos, C and DE Simos (2011). Quasi-cyclic Codes from Cyclic-Structured Designs with Good Properties. *Discrete Mathematics, Algorithms and Applications* **3**, 223–243.
42. Kotsireas, IS, C Koukouvinos, J Seberry, and DE Simos (2010). New classes of orthogonal designs constructed from complementary sequences with given spread. *The Australasian Journal of Combinatorics* **46**, 67–78.
43. Kotsireas, IS, C Koukouvinos, and DE Simos (2010). Inequivalent Hadamard matrices from near normal sequences. *Journal of Combinatorial Mathematics and Combinatorial Computing* **75**, 105–115.
44. Koukouvinos, C and DE Simos (2010). Improving the lower bounds on Inequivalent Hadamard Matrices through Orthogonal Designs and Meta-programming techniques. *Applied Numerical Mathematics* **60**, 370–377.
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Publications Summary and Citation Metrics

Publications Summary

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