

# **2015 IEEE Conference on Communications and Network Security (CNS 2015)**

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# 2nd Workshop on Physical-layer Methods for Wireless Security - Program

## Committees

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Workshop Organizer

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Wireless Cognitive Interference and Multi-Way Relay Channels with private Messages  
**Eduard Jorswieck**

### Technical Talks 1

#### ***Power Efficient and Secure Full-Duplex Wireless Communication Systems***

Derrick Wing Kwan Ng (University of New South Wales, Australia); Yan Sun (Friedrich-Alexander University of Erlangen-Nuremberg, Germany); Robert Schober (University of British Columbia, Canada)  
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#### ***Wiretap-Channels under Constrained Active and Passive Attacks***

Carsten Janda (Dresden University of Technology, Germany); Moritz Wiese (KTH Royal Institute of Stockholm, Sweden); Janis Noetzel (Technische Universität München, Germany); Holger Boche (Technical University Munich, Germany); Eduard Jorswieck (TU Dresden, Germany)  
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#### ***A Stronger Soft-Covering Lemma***

Paul Cuff (Princeton University, USA)  
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**Paul Cuff**

### Technical Talks 2

#### ***An I-MMSE Based Graphical Representation of Rate and Equivocation for the Gaussian Broadcast Channel***

Ronit Bustin, Rafael F. Schaefer and H. Vincent Poor (Princeton University, USA); Shlomo (Shitz) Shamai (The Technion, Israel)  
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#### ***Key Agreement over an Interference Channel with Noiseless Feedback: Achievable Region & Distributed Allocation***

Somayeh Salimi (KTH Royal Institute of Technology, Sweden); Eduard Jorswieck (TU Dresden, Germany); Mikael Skoglund (KTH Royal Institute of Technology, Sweden); Panagiotis Papadimitratos (KTH, Sweden)  
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Kittipong Kittichokechai and Giuseppe Caire (Technische Universität Berlin, Germany)  
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Onur Günlü and Gerhard Kramer (Technische Universität München, Germany); Maciej Skorski (University of Warsaw, Poland)  
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Cornelius Saiki (University of Essex, United Kingdom); Arsenia Chorti (University of Essex & Princeton University, United Kingdom)  
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Stefano Tomasin (Mathematical and Algorithmic Sciences Lab France Research Center & Huawei Technologies Co. Ltd., France)  
pp. 119-124

### ***Secrecy Games in Cognitive Radio Networks with Multiple Secondary Users***

Frederic Gabry (Huawei Technologies, France Research Center, France); Ragnar Thobaben and Mikael Skoglund (KTH Royal Institute of Technology, Sweden)  
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Mohamed Haj Taieb and Jean-Yves Chouinard (Laval University, Canada)  
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## Closing Remarks

### **Workshop Organizers**

# 2015 IEEE Conference on Communications and Network Security (CNS) - Program

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Adrian Perrig, (ETHZ & CMU)

### Session 1A: Mobile Security

#### ***Critical Segment Based Real-time E-Signature for Securing Mobile Transactions***

Yanzhi Ren, Chen Wang and Yingying Chen (Stevens Institute of Technology, USA); Mooi Choo Chuah (Lehigh University, USA); Jie Yang (Florida State University, USA)  
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#### ***Activity Tracking: A New Attack on Location Privacy***

Xihui Chen, Andrzej Mizera and Jun Pang (University of Luxembourg, Luxembourg)  
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#### ***Privacy-Aware and Trustworthy Data Aggregation in Mobile Sensing***

Jingyao Fan (Pennsylvania State University, USA); Qinghua Li (University of Arkansas, USA); Guohong Cao (The Pennsylvania State University, USA)  
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#### ***A Novel and Scalable Communication-History Based Knapsack Authentication Framework for IEEE 802.11 Networks***

Changmin Lee (The George Washington University, USA); Chen Shen (The George Washington University, USA); Gokhan Sahin (Miami University, USA); Kwanghee Choi (Korea Internet and Security Agency, USA); Hyeong-Ah Choi (The George Washington University, USA)  
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Daisuke Moriyama (NICT, Japan); Moti Yung (Google, USA)  
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Alberto Compagno (Sapienza University of Rome, Italy); Mauro Conti, Daniele Lain and Giulio Lovisotto (University of Padua, Italy); Luigi Vincenzo Mancini (Universita' di Roma Sapienza, Italy)  
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#### ***Disrupting Stealthy Botnets through Strategic Placement of Detectors***

Sridhar Venkatesan, Massimiliano Albanese and Sushil Jajodia (George Mason University, USA)  
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#### ***Early Detection of High Entropy Traffic***

Han Zhang and Christos Papadopoulos (Colorado State University, USA)  
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Hesham Mekky (University of Minnesota, USA); Aziz Mohaisen (Verisign Labs, USA); Zhi-Li Zhang (University of Minnesota, USA)  
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#### ***Unknown Malware Detection Using Network Traffic Classification***

Dmitri Bekerman and Bracha Shapira (Ben-Gurion University of the Negev, Israel); Lior Rokach (Ben-Gurion University, Israel); Ariel Bar (Ben-Gurion University of the Negev, Israel)  
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Rong Jin (Huazhong University of Science and Technology, P.R. China); Kai Zeng (George Mason University, USA)  
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### ***SafePay - Protecting against Credit Card Forgery with Existing Magnetic Card Readers***

Yinzhi Cao (Lehigh University, USA); Xiang Pan and Yan Chen (Northwestern University, USA)  
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Yufeng Wang, Waqas A Latif and Chiu C. Tan (Temple University, USA); Yifan Zhang (Binghamton University, USA)  
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Boyang Wang and Ming Li (University of Arizona, USA); Haitao Wang (Utah State University, USA); Hui Li (Xidian University, P.R. China)  
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Dilara Akdoğan (Sabanci University, Turkey); Duygu Karaoğlu Altop (Sabanci University, Turkey); Albert Levi (Sabanci University, Turkey)  
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Bing Wang (Virginia Tech, USA); Wenjing Lou (Virginia Tech & National Science Foundation, USA); Thomas Hou (Virginia Tech, USA)  
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### ***Practical Covert Channels for WiFi Systems***

Jiska Classen and Matthias Schulz (Technische Universität Darmstadt, Germany); Matthias Hollick (Technische Universität Darmstadt & Secure Mobile Networking Lab, Center for Advanced Security Research Darmstadt, Germany)  
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Visal Chea (UOIT, Canada); Miguel Vargas Martin and Ramiro Liscano (University of Ontario Institute of Technology, Canada)  
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Pradhumna L Shrestha and Michael Hempel (University of Nebraska-Lincoln, USA); Fahimeh Rezaei (University of Nebraska Lincoln, USA); Hamid Sharif (University of Nebraska-Lincoln, USA)  
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Rennie Archibald and Dipak Ghosal (University of California, Davis, USA)  
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**Panelists:** Yier Jin (UCF, USA), Ivan Martinovic (Oxford University, U.K.), David McGrew (CISCO, USA), Roberto Minerva (Telecom Italia, Italy), Matthias Schunter (Intel, Germany); **Panel Chair:** Ahmad-Reza Sadeghi (Technische Universität Darmstadt, Germany)

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Bocan Hu, Yan Zhang and Loukas Lazos (University of Arizona, USA)  
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Rong Jin (Huazhong University of Science and Technology, P.R. China); Kai Zeng (George Mason University, USA)  
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Sadegh Farhang (New York University, USA); Yezekael Hayel (LIA, University of Avignon, France); Quanyan Zhu (New York University, USA)  
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Pengwei Wang and Reihaneh Safavi-Naini (University of Calgary, Canada)  
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Andrew N Fisher and Carson Kent (Sandia National Laboratories, USA); David J Zage (Intel Corporation, USA); John C Jarocki (Sandia National Laboratories, USA)  
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Chu Huang and Sencun Zhu (The Pennsylvania State University, USA); Qianlong Guan (Jinan University, P.R. China)  
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Michael Kotson and Alexia Schulz (MIT Lincoln Laboratory, USA)  
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Massimiliano Albanese (George Mason University, USA); Ermanno Battista (University of Naples Federico II, Italy); Sushil Jajodia (George Mason University, USA)  
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Jan-Ole Malchow, Daniel Marzin and Johannes Klick (Freie Universität Berlin, Germany); Robert Kovacs (Hasso-Plattner-Institut für Softwaresystemtechnik GmbH, Germany); Volker Roth (Freie Universität Berlin, Germany)  
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Patrick Drew McDaniel, Pennsylvania State University

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Daniel Steinmetzer (Technische Universität Darmstadt, Germany); Joe Chen (Rice University, USA); Jiska Classen (Technische Universität Darmstadt, Germany); Edward W. Knightly (Rice University, USA); Matthias Hollick (Technische Universität Darmstadt, Germany)  
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Sebastian Bittl, Arturo A. Gonzalez and Matthias Myrtus (Fraunhofer ESK, Germany); Hanno Beckmann and Stefan Sailer (FAF University, Germany); Bernd Eissfeller (University FAF Munich, Germany)  
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### ***Secure Partial Repair in Wireless Caching Networks with Broadcast Channels***

Majid Gerami (KTH (The Royal Institute of Technology), Sweden); Ming Xiao (Royal Institute of Technology, Sweden); Somayeh Salimi and Mikael Skoglund (KTH Royal Institute of Technology, Sweden)  
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Liyang Zhang and Tommaso Melodia (Northeastern University, USA)  
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Sang-Yoon Chang (Advanced Digital Sciences Center (ADSC), Singapore); Yih-Chun Hu and Zhuotao Liu (University of Illinois at Urbana-Champaign, USA)  
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Nolen Scaife (University of Florida, USA); Henry Carter (Georgia Institute of Technology, USA); Patrick Traynor (University of Florida, USA)  
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Rahul Hiran, Niklas Carlsson and Nahid Shahmehri (Linköping University, Sweden)  
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Reuven Cohen, Raziell Hess-Green and Gabi Nakibly (Technion, Israel)  
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Pengkui Luo (University of Minnesota, USA); Ruben Torres (Symantec, USA); Zhi-Li Zhang (University of Minnesota, USA); Sabyasachi Saha (Symantec, USA); Sung-Ju Lee (KAIST, Korea); Antonio Nucci (Cisco Systems, USA); Marco Mellia (Politecnico di Torino, Italy)  
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Laurent Chuat and Pawel Szalachowski (ETH Zurich, Switzerland); Adrian Perrig (ETH Zurich Switzerland & Carnegie Mellon University, USA); Ben Laurie and Eran Messeri (Google Inc., United Kingdom)  
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Jinxue Zhang and Jingchao Sun (Arizona State University, USA); Rui Zhang (University of Hawaii, USA); Yanchao Zhang (Arizona State University, USA)  
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Qinglong Wang (McGill University, Canada); Amir Yahyavi (Carnegie Mellon University, USA); Bettina Kemme and Wenbo He (McGill University, Canada)  
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Guan-Hua Tu (University of California, Los Angeles, USA); Chi-Yu Li (UCLA, USA); Chunyi Peng (The Ohio State University, USA); Songwu Lu (University of California at Los Angeles, USA)  
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Ruei-Hau Hsu (Singapore University of Technology and Design, Singapore); Jemin Lee (Singapore University of Technology and Design (SUTD), Singapore)  
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Muhammad Qasim Ali (University of North Carolina Charlotte & Symantec Corporation, USA); Ayesha B. Ashfaq (National University of Sciences & Technology, Pakistan); Ehab Al-Shaer (University of North Carolina Charlotte, USA); Qi Duan (UNCC, USA)  
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WeiJie Liu (University of Illinois at Urbana-champaign, USA); Rakesh B. Bobba (Oregon State University, USA); Sibin Mohan and Roy H Campbell (University of Illinois at Urbana-Champaign, USA)  
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### ***mTor: A Multipath Tor Routing Beyond Bandwidth Throttling***

Lei Yang and Fengjun Li (The University of Kansas, USA)  
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Guangchi Liu and Qing Yang (Montana State University, USA); Honggang Wang (University of Massachusetts, Dartmouth & College of Engineering, USA); Shaoen Wu (Ball State University, USA); Mike P Wittie (Montana State University, USA)  
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# 1st Workshop on Security and Privacy in the Cloud (SPC 2015) - Program

## Committees

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Enforceable Security in the Cloud to Uphold Data Ownership

**Pierangela Samarati (Università degli Studi di Milano, Italy)**

### SPC-S1: Privacy Preserving Data Processing

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Rosario Gennaro, Emmanuel Ekwedike and Whitney Drazen (City College of New York, USA)  
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#### ***Privacy-Preserving Distributed Statistical Computation to a Semi-Honest Multi-Cloud***

Aida Calviño and Sara Ricci (University Rovira i Virgili, Spain); Josep Domingo-Ferrer (Universitat Rovira i Virgili, Spain)  
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#### ***Privacy Preserving Cloud Computing through Piecewise Approximation of Multivariate Functions***

Riccardo Lazzeretti and Tommaso Pignata (University of Siena, Italy)  
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Simon Foley and Ultan Neville (University College Cork, Ireland)  
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Andrei Costin (EURECOM, France)  
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#### ***Securing the infrastructure and the workloads of linux containers***

Massimiliano Mattetti, Alexandra Shulman-Peleg and Yair Allouche (IBM Cyber Security Center of Excellence, Israel); Antonio Corradi (University of Bologna & CIRI ICT, Italy); Shlomi Dolev (Ben-Gurion University, Israel); Luca Foschini (University of Bologna, Italy)  
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Samson Esayas and Tobias Mahler (Norwegian Research Centre for Computers and Law, University of Oslo, Norway); Fredrik Seehusen (SINTEf, Norway); Frode Bjørnstad and Veda Brubakk (Evry, Norway)  
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#### ***Efficient and Scalable Aggregate Signcryption Scheme Based on Multi-trapdoor Hash Functions***

Santosh Chandrasekhar (University of California, Merced, USA); Mukesh Singhal (University of California at Merced, USA)  
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Monir Azraoui, Kaoutar Elkhyaoui, Melek Önen and Refik Molva (EURECOM, France)  
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***Integer Arithmetic over Ciphertext and Homomorphic Data Aggregation***

Yao Chen and Guang Gong (University of Waterloo, Canada)  
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***Windowing Technique for Lazy Sorting of Encrypted Data***

Ayantika Chatterjee and Indranil Sen Gupta (Indian Institute of Technology, Kharagpur, India)  
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***Secure Cloud Storage: a Framework for Data Protection as a Service in the Multi-cloud Environment***

Quang Hieu Vu (EBTIC, Khalifa University, UAE); Maurizio Colombo (Khalifa University, UAE); Rasool Asal (EBTIC, Khalifa University, UAE); Ali Sajjad (University of Kent & British Telecom, United Kingdom); Fadi El-moussa (BT security research, United Kingdom); Theo Dimitrakos (British Telecom, United Kingdom)  
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***Self-protecting multi-cloud applications***

Antonio M. Ortiz Torres (Montimage, France); Erkuden Rios (Tecnalia, Spain); Wissam Mallouli (Montimage, France); Eider Iturbe (Tecnalia, Spain); Edgardo Montes de Oca (Montimage, France)  
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***Identity as a Service: A Cloud Based Common Capability***

Géry Ducatel (British Telecommunications, United Kingdom)  
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***Identity Management in IoT Clouds: a FIWARE Case of Study***

Luciano Barreto (UFSC, Brazil); Antonio Celesti, Maria Fazio, Massimo Villari and Antonio Puliafito (University of Messina, Italy)  
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***A Traceable Hierarchical Attribute-based Authentication Solution for the Cloud***

Huihui Yang (Grimstad, Jon Lilletunsvet 9, Grimstad, Norway); Vladimir Oleshchuk (University of Agder, Norway)  
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***Pulga, a tiny open-source MQTT broker for flexible and secure IoT deployments***

Jose Luis Espinosa-Aranda, Noelia Vallez, Carlos Sanchez-Bueno and Daniel Aguado-Araujo (University of Castilla-La Mancha, Spain); Gloria Bueno (Universidad de Castilla-La Mancha, Spain); Oscar Deniz (University of Castilla-La Mancha, Spain)  
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# 1st Workshop on Security and Privacy in Cybermatics (SPiCy 2015) - Program

## Committees

### SPiCy Keynote: Keynote Talk

Cognitive Security: A New Approach to Securing Wireless Networks and Mobile Applications  
**Wenjing Lou (Virginia Tech, USA)**

The past decade has witnessed an explosive deployment of wireless technologies. The vast expansion of the connectivity by wireless networks, combined with the rapid evolution of highly-capable mobile devices and life-changing mobile applications, has had strong impacts on our life. Security has arisen as a major concern in wireless networks. Many crypto-based solutions have been developed to provide the first line of defense, ranging from fundamental security services such as authentication and privacy, to the protection of the infrastructure and the various network components. Recently, cognitive security, which aims to supplement the crypto-based solutions with unique, unforgeable, and robust credentials that are inherent to the network entities such as mobile devices and users, has emerged as a promising approach to the unique challenge facing mobile wireless networks. In this talk, we will discuss this transition and several promising research directions. In particular, we will examine how wireless signals at a certain location at a certain time can be exploited to form spatial-temporal location tags, which can further be used to carry out a location based handshake that establishes secure communications among strangers, who do not have a pre-shared secret, and a privacy-preserving proximity test without revealing the user's actual location to the server or other users not within the proximity.

### SPiCy 1: Session 1

#### ***Internet-facing PLCs as a Network Backdoor***

Johannes Klick, Stephan Lau, Daniel Marzin, Jan-Ole Malchow and Volker Roth (Freie Universität Berlin, Germany)  
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#### ***A Random Access Procedure Based on Tunable Puzzles***

Mats Naslund (Ericsson Research, Sweden); Elena Dubrova (KTH, Sweden); Göran Selander (Ericsson Research, Sweden); Fredrik Lindqvist (Ericsson Research & Ericsson AB, Sweden)  
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#### ***Study on impact of adding security in a 6LoWPAN based network***

Matthias Carlier (Vrije Universiteit Brussel, Belgium); Ruben Smeets (KU Leuven, Belgium); Kris Steenhaut and An Braeken (Vrije Universiteit Brussel, Belgium); Nele Mentens and Kris Aerts (KU Leuven, Belgium)  
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Yoan Miche (Nokia Solutions and Networks, Finland); Silke Holtmanns (Nokia Research Center, Finland); Dare Abodunrin (Nokia Solutions and Networks, Finland)  
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#### ***Security Enhancements for Building Saturation-free, Low-Power NoC-based MPSoCs***

Kyprianos Papadimitriou (Technological Educational Institute of Crete & TU Crete, Greece); Polydoros Petrakis (Technological Educational Institute of Crete, Greece); Miltos Grammatikakis (TEI, Greece); Marcello Coppola (ST Microelectronics, France)  
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#### ***CaT: Evaluating Cloud-aided TLS for Smartphone Energy Efficiency***

Kanishka Ariyapala (University of Florence, Italy); Mauro Conti (University of Padua, Italy); Cristina M. Pinotti (University of Perugia, Italy)  
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## SPICy 3: Session 3

### ***A Novel Method for Securing Critical Infrastructures by Detecting Hidden Flows of Data***

Francesco Benedetto (University of Roma Tre & Signal Processing for Telecommunications and Economics Lab., Italy); Gaetano Giunta (University of "Roma TRE" & Laboratory of Signal Processing for Telecommunications and Economics, Italy); Angelo Liguori (University of Roma Tre, Italy); Arno Wacker (University of Kassel, Germany)  
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### ***Verifiable and Privacy-preserving Fine-Grained Data-Collection for Smart Metering***

Moreno Ambrosin (University of Padua, Italy); Hossein Hosseini (University of Washington, USA); Kalikinkar Mandal (University of Washington, USA); Mauro Conti (University of Padua, Italy); Radha Poovendran (University of Washington, USA)  
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### ***A dynamic algorithm for palmprint recognition***

David Palma (University of Udine & DIEGM, Italy); Pier Luca Montessoro and Giulia Giordano (University of Udine, Italy); Franco Blanchini (Università di Udine, Italy)  
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### ***Brain-Computer Interface Applications: Security and Privacy Challenges***

QianQian Li, Ding Ding and Mauro Conti (University of Padua, Italy)  
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### ***Analysis and monitoring of hidden TCP traffic based on an open-source covert timing channel***

Angelo Liguori (University of Roma Tre, Italy); Francesco Benedetto (University of Roma Tre & Signal Processing for Telecommunications and Economics Lab., Italy); Gaetano Giunta (University of "Roma TRE" & Laboratory of Signal Processing for Telecommunications and Economics, Italy); Arno Wacker (University of Kassel, Germany); Nils Kopal (Kassel University, Germany)  
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# IEEE CNS 2015 Poster Session - Program

## Posters: Posters

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Wang Kai, Zhang Yuqing, Liu Qixu and Dan Fan (University of Chinese Academy of Sciences, P.R. China)  
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### ***A Novel Covert Timing Channel Detection Approach for Online Network Traffic***

Fahimeh Rezaei (University of Nebraska Lincoln, USA); Michael Hempel and Pradhumna L Shrestha (University of Nebraska-Lincoln, USA); Sushanta Mohan Rakshit (University of Nebraska - Lincoln, USA); Hamid Sharif (University of Nebraska-Lincoln, USA)  
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### ***A Predictive Zero-day Network Defense using Long-term Port-scan Recording***

Chia-Nan Kao, Yung-Cheng Chang, Nen-Fu Huang, Salim SI and I-Ju Liao (National Tsing Hua University, Taiwan); Rong-Tai Liu and Hsien-Wei Hung (Trend Micro Incorporated, Taiwan)  
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### ***A privacy-preserving recommender system for mobile commerce***

Felix J. Garcia Clemente (University of Murcia, Spain)  
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### ***An Industrial Control Systems Incident Response Decision Framework***

Ying He, Leandros A. Maglaras and Helge Janicke (De Montfort University, United Kingdom); Kevin Jones (Airbus Group Innovations, United Kingdom)  
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### ***An SELinux-based Intent manager for Android***

Simone Mutti, Enrico Bacis and Stefano Paraboschi (University of Bergamo, Italy)  
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### ***Android malware detection from Google Play meta-data: Selection of important features***

Alfonso Muñoz (Eleven Paths, Telefonica, Spain); Ignacio Martín (Universidad Carlos III de Madrid, Spain); Antonio Guzmán (Eleven Paths, Telefonica, Spain); José Alberto Hernández (Universidad Carlos III de Madrid, Spain)  
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