

# PROGRAM GUIDE

# RNDM<sup>2014</sup>

6<sup>th</sup> International Workshop on Reliable  
Networks Design and Modeling

November 17-19, 2014  
Barcelona, Catalonia-Spain



## Organized by

Jacek Rak



James P.G. Sterbenz



Gangxiang Shen



## Technically co-sponsored by



## Patrons



[www.rndm.pl](http://www.rndm.pl)

## November 17, 2014

### Opening Session (9:00 – 9:30)

Jacek Rak (PL), Boris Bellalta (ES), Josep Sole Pareta (ES)

### Keynote Talk (9:30 – 10:30)

*Robustness Analysis of Networks under Large-scale Failures: Drawing Robustness Surfaces*

**Jose L. Marzo, Eusebi Calle**  
(University of Girona, ES)

Chair: Josep Sole Pareta (ES)



### Coffee Break (10:30 – 11:00)

### Technical Session I (11:00 – 12:50)

*Resilient Routing Strategies*

Chair: Wojciech Molisz (PL)

1. *Fault-tolerant Greedy Forest Routing for Complex Networks – full paper (11:00-11:30)*  
Rein Houthooff (BE), Sahel Sahhaf (BE), Wouter Tavernier (BE), Filip De Turck (BE), Didier Colle (BE), Mario Pickavet (BE)
2. *A Heuristic for Widest Edge-disjoint Path Pair Lexicographic Optimization – short paper (11:30-11:55)*  
Pedro Cruz (PT), Teresa Gomes (PT), Deep Medhi (US)
3. *Pre-Configured Polyhedron (p-Poly) with Optimal Protection Efficiency for Dual-Link Failure in Optical Mesh Networks – short paper (11:55-12:20)*  
Chen Ma (CN), Jie Zhang (CN), Yongli Zhao (CN), Xin Li (CN), Jian Yuan (CN), Zilian Jin (CN), Sh. Huang (CN), Wanyi Gu (CN)
4. *Risk Mitigation in Resilient Networks – full paper (12:20-12:50)*  
Piotr Chołda (PL), Piotr Guzik (PL), Krzysztof Rusek (PL)

### Lunch (13:00 – 14:00)

### Technical Session II (14:00 – 16:00)

*Theory of Resilient Routing*

Chair: Teresa Gomes (PT)

1. *Reliability-dependent Combined Network Design and Routing Optimization – full paper (14:00-14:30)*  
Dimitri Papadimitriou (BE), Bernard Fortz (BE)

2. *Availability-Based Path Selection – full paper (14:30-15:00)*  
Song Yang (NL), Stojan Trajanovski (NL), Fernando A. Kuipers (NL)
3. *Elastic Rerouting - Models and Resolution Methods – full paper (15:00-15:30)*  
Yoann Fouquet (FR), Dritan Nace (FR), Michał Pióro (PL, SE), Michael Poss (FR), Mateusz Żotkiewicz (PL)
4. *Design of Robust Dependent Networks against Flow-based Cascading Failures – short paper (15:30-15:55)*  
Tanneke Ouboter (NL), Daniel Worm (NL), Robert Kooij (NL), Huijuan Wang (NL)

## Coffee Break (16:00 – 16:30)

### Technical Session III (16:30 – 18:30)

#### Network Optimization

Chair: Dimitri Papadimitriou (BE)

1. *Region based Fault-tolerant Distributed File Storage System Design Under Budget Constraint – full paper (16:30-17:00)*  
Anisha Mazumder (US), Arun Das (US), Chenyang Zhou (US), Arunabha Sen (US)
2. *SRLG Failure Localization using Nested M-trails – full paper (17:00-17:30)*  
Mohammed L. Ali (US), Pin-Han Ho (US), János Tapolcai (HU)
3. *An Algorithm for Computing All-terminal Reliability Bounds – full paper (17:30-18:00)*  
Jaime Silva (PT), Teresa Gomes (PT), David Tipper (US), Lúcia Martins (PT), Velin Kounev (US)
4. *Diameter Constrained Reliability: Complexity and Distinguished Topologies – short paper (18:00-18:25)*  
Eduardo Canale (UY), Héctor Cancela (UY), Franco Robledo (UY), Pablo Romero (UY), Pablo Sartor (UY)

## Welcome Reception (20:00 – 00:00)

in El Tinglado restaurant

# November 18, 2014

### Keynote Talk (9:00 – 10:00)

*What is the Impact of Network Protection on the Energy-efficiency?*

#### Bart Lannoo

(Ghent University – iMinds, BE)

Chair: Jacek Rak (PL)



### Invited Talk (10:00 – 10:30)

*Power Efficient Service Differentiation Based on Traffic-Aware Survivable Elastic Optical Networks*

Ioan Turus (DK), Anna Manolova Fagertun (DK), Lars Dittmann (DK), Annalisa Morea (FR), Dominique Verchere (FR), Josva Kleist (DK)

## Coffee Break (10:30 – 11:00)

### Invited Talk (11:00 – 11:30)

*Fragmentation-aware Survivable Routing and Spectrum Assignment in Elastic Optical Networks*

Christian Thießen (SE), Çiçek Çavdar (SE)

### Technical Session IV (11:30 – 12:50)

*S2CN'14: Survivability of Elastic Optical Networks*

Chair: Piotr Chołda (PL)

1. *ILP Model and Algorithms for Restoration of Anycast Flows in Elastic Optical Networks – full paper (11:30-12:00)*  
Krzysztof Walkowiak (PL), Michał Kucharzak (PL), Paweł Kopeć (PL), Andrzej Kasprzak (PL)
2. *Gains of Anycast Demand Relocation in Survivable Elastic Optical Networks – short paper (12:00-12:25)*  
Róża Goścień (PL), Krzysztof Walkowiak (PL), Mirosław Klinkowski (PL)
3. *Content Distribution in Elastic Optical Networks with Dedicated Path Protection – short paper (12:25-12:50)*  
Krzysztof Walkowiak (PL), Róża Goścień (PL), Wojciech Kmiecik (PL), Mirosław Klinkowski (PL)

## Group Photo of RNDM 2014 Participants (12:50 – 13:00)

### Lunch (13:00 – 14:00)

### Technical Session V (14:00 – 16:00)

*S2CN'14: Optimization of Survivable Content-oriented and Cloud-ready Networks*

Chair: Krzysztof Walkowiak (PL)

1. *Scalable Resilient Virtual Network Design Algorithms for Cloud Services – full paper (14:00-14:28)*  
Isil Burcu Barla Harter (DE), Marco Hoffmann (DE), Dominic A. Schupke (DE), Georg Carle (DE)
2. *Critical Services in the Cloud: Understanding Security and Resilience Risks – short paper (14:28-14:51)*  
Thomas Hecht (AT), Paul Smith (AT)
3. *Network Coding for Survivable Multicast Video Streaming Networks – short paper (14:51-15:14)*  
Cédric Bentz (FR), Sourour Elloumi (FR), Eric Gourdin (FR), Thibaut Lefebvre (FR)
4. *Survivable Multicasting in Sparse-Splitting Optical Networks – short paper (15:14-15:37)*  
Costas K. Constantinou (CY), Konstantinos Manousakis (CY), Georgios Ellinas (CY)
5. *Reliability-aware Virtual Data Center Embedding – short paper (15:37-16:00)*  
Cheng Zhuo (CN), Hongfang Yu (CN), Vishal Anand (US)

## Coffee Break (16:00 – 16:30)

### Invited Talk (16:30 – 17:00)

*Modelling and Impact of Flexible WDM Grid with Variable Channel Rates on Multiple Network Layers*

Achim Autenrieth (DE), Thomas Szyrkowiec (DE), Jörg-Peter Elbers (DE)

### Technical Session VI (17:00 – 18:30)

*Resilience of Converged Services*

Chair: Bart Lannoo (BE)

1. *Using Genetic Algorithms to Improve the Reliability of Dual Homed Wireless Critical Services – full paper (17:00-17:25)*  
Eirik L. Følstad (NO), Bjarne E. Helvik (NO)
2. *Threshold Configuration of Emergency Trunk Reservation Considering Traffic Intensity for Accepting More General Telephone Calls – short paper (17:25-17:45)*  
Kazuki Tanabe (JP), Sumiko Miyata (JP), Ken-ichi Baba (JP), Katsunori Yamaoka (JP)
3. *Analysis of Critical Node Attacks in Mobile Ad Hoc Networks – full paper (17:45-18:05)*  
Dongsheng Zhang (US), James P.G. Sterbenz (US, UK)
4. *Geodiverse Routing with Path Jitter Requirement under Regional Challenges – full paper (18:05-18:30)*  
Yufei Cheng (US), James P.G. Sterbenz (US, UK)

## Gala Dinner (20:00 – 00:00)

in *Fabrica Moritz* restaurant

# November 19, 2014

### Technical Session VII (9:00 – 10:30)

*Network Reliability Assessment*

Chair: Achim Autenrieth (DE)

1. *Epidemic and Cascading Survivability of Complex Networks – short paper (9:00-9:21)*  
Marc Manzano (ES), Eusebi Calle (ES), Jordi Ripoll, Anna Manolova Fagertun (DK), Victor Torres-Padrosa (ES), Sakshi Pahwa (US), Caterina Scoglio (US)
2. *Cost-Constrained and Centrality-Balanced Network Design Improvement – full paper (9:21-9:48)*  
Mohammed J.F. Alenazi (SA, US), Egemen K. Çetinkaya (US), James P.G. Sterbenz (US, UK)
3. *Cost-Efficient Network Improvement to Achieve Maximum Path Diversity – short paper (9:48-10:09)*  
Mohammed J.F. Alenazi (SA, US), Egemen K. Çetinkaya (US), James P.G. Sterbenz (US, UK)
4. *On the Impact of Software Failures on Time Division Multiplexed Passive Optical Networks Dependability – short paper (10:09-10:30)*  
Álvaro Fernández (NO), Norvald Stol (NO)

