

# **2011 8th International Workshop on the Design of Reliable Communication Networks**

**(DRCN 2011)**

**Krakow, Poland  
10-12 October 2011**



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## Technical Sessions

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Monday, 10<sup>th</sup> October

### ➤ Multilayer and Optical Networks

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Chair: Maurizio Naldi

Monday, 10<sup>th</sup> October, 14:00-15:30

Candidate  
Best Paper Award

#### Logical Topology Survivability in IP-over-WDM Networks: Survivable Lightpath Routing for Maximum Logical Topology Capacity and Minimum Spare Capacity Requirements"<sup>223</sup>

Tachun Lin (University of Oklahoma, USA); Zhili Zhou (IBM Thomas J. Watson Research Center, USA); Krishnaiyan Thulasiraman (University of Oklahoma, USA)

#### Monitoring Burst (M-Burst)- A Novel Framework of Failure Localization in All-Optical Mesh Networks"<sup>22</sup>

Mohammed Ali (University of Waterloo, Canada); Pin-Han Ho (University of Waterloo, Canada); Bin Wu (University of Electronic Science and Technology China, P.R. China); János Tapolcai (Budapest University of Technology and Economics, Hungary); Basem Shihada (KAUST, Canada)

Candidate  
Best Paper Award

#### A Network Protection Design Model and A Study for Three-Layer Networks"<sup>239</sup>

Iyad Katib (University of Missouri-Kansas City, USA); Deep Medhi (University of Missouri-Kansas City, USA)

### ➤ Resilience and Business

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Chair: Prosper Chemouil

Monday, 10<sup>th</sup> October, 16:00-18:00

#### Customer Experience Driven Self-Organizing Network (Invited Industrial Paper)"<sup>247</sup>

Lukasz Mendyk (Comarch SA, Poland)

#### Guaranteeing Service Availability in SLAs on Networks with Non Independent Failures"<sup>252</sup>

Andres Gonzalez (Norwegian University of Science and Technology, Norway); Bjarne E. Helvik (Norwegian University of Science and Technology, Norway)

#### Optical Network Net Present Value Optimization in Shared Path Protection Environments"<sup>25</sup>

Marc Ruiz (Universitat Politècnica de Catalunya, Spain); Luis Velasco (Universitat Politècnica de Catalunya, Spain); Jaume Comellas (Universitat Politècnica de Catalunya, Spain); Gabriel Junyent (Universitat Politècnica de Catalunya, Spain)

#### Network Protection through Insurance: Premium Computation for the ON-OFF Service Model"<sup>268</sup>

Loretta Mastroeni (Università Di Roma Tre, Italy); Maurizio Naldi (University of Rome "Tor Vergata", Italy)

# Technical Sessions

Tuesday, 11<sup>th</sup> October

## Resilience Optimization

Chair: Robert Doverspike

Tuesday 11<sup>th</sup> October, 10:30-12:00

### An Integrated Model for Survivable Network Design under Demand Uncertainty<sup>276</sup>

Arie M. C. A. Koster (RWTH Aachen University, Germany); Manuel Kutschka (RWTH Aachen University, Germany)

### Optimizing IGP Link Costs for Improving IP-level Resilience<sup>284</sup>

Gábor Rétvári (Budapest University of Technology and Economics, Hungary); Levente Csikor (Budapest University of Technology and Economics, Hungary); János Tapolcai (Budapest University of Technology and Economics, Hungary); Gábor Enyedi (Ericsson Research, Hungary); András Császár (Ericsson Research, Hungary)

### Incremental Optical Network Topology Optimization Using Meta-Mesh Span Restoration<sup>292</sup>

Ahmed Zaky Kasem (University of Alberta, Canada); John Doucette (University of Alberta, Canada)

## Vulnerability Analysis

Chair: David Tipper

Tuesday, 11<sup>th</sup> October, 13:00-14:30

### Effects of Node Protections against Intentional Attack in Complex Communication Networks<sup>29</sup>:

Shi Xiao (Nanyang Technological University, Singapore); Gaoxi Xiao (Nanyang Technological University, Singapore)

### Optimization of Network Protection against Virus Spread<sup>2</sup>: 8

Eric Gourdin (Orange Labs, France); Jasmina Omic (Risc Secure, The Netherlands); Piet Van Mieghem (Delft University of Technology, The Netherlands)

### On Capacity Planning for Minimum Vulnerability<sup>2</sup>: 6

Alireza Bigdeli (University of Toronto, Canada); Ali Tizghadam (University of Toronto, Canada); Alberto Leon-Garcia (University of Toronto, Canada)

## Protection Design

Chair: Deep Medhi

Tuesday, 11<sup>th</sup> October, 15:00-16:30

### Efficient Iterative Design Algorithm for Enhancing Resource Utilization of Shared Protected Optical Path Networks<sup>324</sup>

Masakazu Sato (Nagoya University, Japan); Hiroshi Hasegawa (Nagoya University, Japan); Ken-Ichi Sato (Nagoya University, Japan)

### A Meta-Heuristic Approach for Non-Bifurcated Dedicated Protection in WDM Optical Networks<sup>332</sup>

Péter Balázs Soproni (Budapest University of Technology and Economics, Hungary); Péter Babarczi (Budapest University of Technology and Economics, Hungary); János Tapolcai (Budapest University of Technology and Economics, Hungary); Tibor Cinkler (Budapest University of Technology and Economics, Hungary); Pin-Han Ho (University of Waterloo, Canada)

### Spare Capacity Allocation using Shared Backup Path Protection for Dual Link Failures<sup>33</sup>:

Victor Yu Liu (Huawei USA, USA); David Tipper (University of Pittsburgh, USA)

Best Paper  
Award

Candidate  
Best Paper Award



# Technical Sessions

Wednesday 12<sup>th</sup> October

## ➤ Mobile and Wireless Networks

Chair: John Doucette

Wednesday, 12<sup>th</sup> October, 10:00-12:00

**Optimisation of Network Planning Processes as the Key Solution for Increasing Efficiency (Invited Industrial Paper)"348**  
Jakub Zaluski-Kapusta (Comarch, Poland) [presenter: Wojciech Dziunikowski (Comarch, Poland)]

**Failures and Changes in Cellular Access Networks; A Study of Field Data"354**  
Eirik L Følstad (Norwegian University of Science and Technology, Norway); Bjarne E. Helvik (Norwegian University of Science and Technology, Norway)

**An Approach to Quantifying Resilience in Mobile Ad hoc Networks"362**  
Abdul Jabbar (University of Kansas, USA); Hemanth Narra (University of Kansas, USA); James P. G. Sterbenz (University of Kansas, USA & Lancaster University, UK)

**Fault Tolerant Sensor Placement Optimization with Minimum Detection Probability Guaranteed"36:**  
Pakpoom Hoyingcharoen (Prince of Songkla University, Thailand); Wiklom Teerapabkajornet (Prince of Songkla University, Thailand)

## ➤ Improving IP Network Robustness

Chair: Dominic Schupke

Wednesday, 12<sup>th</sup> October, 13:30-15:00

**Loop-Free Convergence using Ordered FIB Updates: Analysis and Routing Optimization"378**  
David Hock (University of Wuerzburg, Germany); Matthias Hartmann (University of Wuerzburg, Germany); Tim Neubert (University of Wuerzburg, Germany); Michael Menth (University of Tuebingen, Germany)

**Enabling Fast Failure Recovery in OpenFlow Networks"386**  
Sachin Sharma (Ghent University, Belgium); Dimitri Staessens (Ghent University, Belgium); Didier Colle (Ghent University, Belgium); Mario Pickavet (Ghent University, Belgium); Piet Demeester (Ghent University, Belgium)

**An Adaptive Approach to Network Resilience: Evolving Challenge Detection and Mitigation"394**  
Yue Yu (University of Sydney, Australia); Michael Fry (University of Sydney, Australia); Alberto E. Schaeffer-Filho (Lancaster University, UK); Paul Smith (Lancaster University, UK); David Hutchison (Lancaster University, UK)

## ➤ Shared Risk Link Groups

Chair: Joerg Eperspaecher

Wednesday, 12<sup>th</sup> October, 15:30-17:00

**SRLG-Diverse Routing of Multiple Circuits in a Heterogeneous Optical Transport Network"3: 2**  
Dahai Xu (AT&T Labs - Research, USA); Guangzhi Li (AT&T Labs - Research, USA); Byrav Ramamurthy (University of Nebraska-Lincoln, USA); Angela Chiu (AT&T Laboratories, USA); Dongmei Wang (AT&T Labs - Research, USA); Robert Doverspike (AT&T Labs - Research, USA)

**SRLG Failure Localization with Monitoring Trails in All-Optical Mesh Networks"3: :**  
Péter Babarczi (Budapest University of Technology and Economics, Hungary); János Tapolcai (Budapest University of Technology and Economics, Hungary); Pin-Han Ho (University of Waterloo, Canada)

**SRLG Failure-Disjoint Path Pair of Min-Sum Cost in GMPLS Networks"3: 8**  
Teresa M. Gomes (University of Coimbra, Portugal); José Silva (Inesc-Coimbra, Portugal); José Craveirinha (University of Coimbra, Portugal); Carlos Simões (University of Coimbra, Portugal)