# Annex C – CROSS-LAYER WORKSHOP TECHNICAL PROGRAMME

**NATO IST-030/RTG-012 INFORMAL WORKSHOP**

**CROSS-LAYER ISSUES IN THE DESIGN OF TACTICAL MOBILE AD HOC WIRELESS NETWORKS**

**Integration of Communication and Networking Functions to Support Optimal Information Management**

Naval Research Laboratory
Washington, DC, USA
2-3 June 2004

*(Click on the links below to view the presentations)*

**Wednesday, 2 June**

0900 Welcoming Remarks
– Jeffrey E. Wieselthier, Workshop Chair, and John McLean, Superintendent, Information Technology Division, Naval Research Laboratory

0930 *Information Management in a Tactical Mobile Wireless Communications Environment*
– Allan Gibb, Defence R&D Canada – Valcartier, Canada

1045 Keynote Presentation – *Integrated Cross-Layer Protocols for Adaptive Transmission and Routing of Multimedia Traffic in Tactical Spread-Spectrum Networks*
– Michael B. Pursley, Holcomb Professor of Electrical Engineering, Clemson University

1300 Session 1

*Cross-Layer Design of Wireless Networks with Resource-Constrained Nodes*
– Andrea Goldsmith, Stanford University

*Delay-Energy Analysis of Wireless Networks*
– Shih Yu Chang, Achilleas Anastasopoulos, and Wayne Stark, University of Michigan

*Scheduling on a Channel with Time-Varying Capacity*
– Ashay Dhamdhere and Ramesh R. Rao University of California, San Diego

*Topology Management from Bottom to Top*
– Martha Steenstrup, Stow Research LLC and Clemson University

1445 Session 2

*Medium-Access Control Protocols for Heterogeneous Mobile Ad Hoc Networks with Directional Antennas*
– Daniel L. Noneaker and Harlan B. Russell, Clemson University

*Cross-Layer Simulation and Aggregation Techniques for Wireless Ad Hoc Networks*
– Vincent Gauthier, Monique Becker, André Luc Beylot, and Riadh Dhaou, Institut National des Télécommunications, Evry, France

*Cross-Layer Optimization and Adaptation in Wireless Mobile Ad Hoc Networks*
– Ashutosh Dutta, Raquel Morera, Tony McAuley, Nim Cheung, and Ken Young, Telcordia Technologies, Inc.

*Interlayer Routing Issues for Wireless Networks*
– Thomas R. Henderson, Marcelo Albuquerque, Phillip A. Spagnolo, and Jae H. Kim, Boeing

1615 Poster Session and Reception

**Thursday, 3 June**

0830 Session 3

Cross-Layer Design Issues for MANET Autoconfiguration
– Joseph P. Macker, Naval Research Laboratory

*Attacks and Defenses Utilizing Cross-Layer Interactions in MANET*
– John S. Baras and Svetlana Radosavac, University of Maryland, College Park

*A Cross-Layer Diversity Technique for Multi-Carrier OFDM Multimedia Networks*
– Yee Sin Chan, Pamela C. Cosman, Larry Milstein, University of California, San Diego

*Balancing Transport and Physical Layers in Wireless Ad Hoc Networks: Jointly Optimal TCP Congestion Control and Power Control*
– Mung Chiang, Princeton University

1015 Session 4

*Cross-Layer Design for Data Accessibility in Mobile Ad Hoc Networks*
– Klara Nahrstedt, University of Illinois at Urbana-Champaign

*Adaptive Middleware for Challenged Networks*
– Tom Ritter (FhG FOKUS, Germany) and Rudolf Schreiner (ObjectSecurity Ltd., UK)

*Energy, Routing and Decentralized Detection in a Sensor Network*
– Steven A. Borbash, Department of Defense/NSA; and Anthony Ephremides, University of Maryland, College Park

*Cross Layer Design for Large Scale Sensor Networks*
– Ananthram Swami, Army Research Laboratory

*A Line in the Sand: A Wireless Sensor Network for Target Detection, Classification, and Tracking*
– Anish Arora et al., The Ohio State University

1315 Panel Discussion – *Can Cross-Layer Techniques Enhance the Performance of Tactical Military Networks?*

Moderator: Jeffrey E. Wieselthier, Naval Research Laboratory

Panellists:

*Andrea Goldsmith*, Stanford University

Larry Milstein, University of California, San Diego

*Klara Nahrstedt*, University of Illinois at Urbana-Champaign

*Raymond Pickholtz*, George Washington University

*Michael B. Pursley*, Clemson University

*Martha Steenstrup*, Stow Research LLC and Clemson University

1600 Final Remarks and Discussion

1630 Workshop Close

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## POSTER SESSION

*Efficient Message Authentication for Spread Spectrum Wireless Communications*
– Charles Boncelet, University of Delaware; and David Carman, McAfee Research

*Future Combat System Scalable Mobile Network Demonstration -- Tactical Mobile Ad-Hoc Networking Performance and Validation Results*
– Wayne W. Brown, Vincent Marano IV, William MacCorkell, The Boeing Company; and Timothy Krout, Cengen, Inc.

*Joint Iterative Decoding and Authentication*
– David Carman, McAfee Research, Network Associates; Michael Jordan, The Johns Hopkins University Applied Physics Laboratory; and Charles Boncelet, University of Delaware

*On the Use of Path Diversity with Bursty Channels*
– Roch Guerin, University of Pennsylvania

*Multipath Routing – A Cross-Layer Design Tool for QoS Provisioning in MANETs*
– Zygmunt J. Haas, Cornell University

*Support Multimedia SIP Applications over MANET Using Cross Layer Design*
– Li Li and Louise Lamont, Communications Research Centre of Canada

Cross-Layering Approach for GPS-based Routing and Network Topology Construction
– Yibei Ling, Wai Chen, and Russell Hsing, Telcordia Technologies

*Cooperative Diversity in Tactical Networks*

– John M. Shea, Tan F. Wong, Yuguang Fang, Arun Avudainayagam, Wing Hin Wong, and Xin Li, University of Florida

*Cross-Layer Approach to Low Energy Wireless Ad Hoc Networks*

– Geethapriya Thamilarasu, State University of New York at Buffalo; Sumita Mishra, CompSys Technologies, Inc.; and Ramalingam Sridhar, State University of New York at Buffalo

*Scaling Cooperative Diversity to Large Networks*

– Matthew C. Valenti, West Virginia University

*Energy-Aware Broadcasting and Multicasting in Wireless Ad Hoc Networks: A Cross-Layering Approach*

– Jeffrey E. Wieselthier and Gam D. Nguyen, Naval Research Laboratory; and Anthony Ephremides, University of Maryland