

# Emilio Leonardi

Dipartimento di Elettronica  
Politecnico di Torino  
Corso Duca degli Abruzzi 24  
I-10129 Torino (ITALY)  
Phone: +39-011-5644133 (Secretary +39-011-5644000)  
Fax: +39-011-5644099  
Email: leonardi@polito.it

Born in Cosenza (Italy) on March 28-th, 1967

## EDUCATION

- Laurea (110/110 cum Laude), Electrical Engineering, July 1991, Politecnico di Torino, Italy;
- Ph. D. in Electrical Engineering, November 1996, Politecnico di Torino, with a dissertation on “MAC Protocols for All-Optical WDM Ring Networks”.

## CURRENT POSITION

- **(2005-today)** Associate Professor at Dipartimento di Elettronica, Politecnico di Torino.

## SPECIAL ACTIVITIES

- **(1994-1995)** Visiting Scholar, Department of Computer Science, University of California Los Angeles (UCLA), Los Angeles, CA; involvement in the activities of Prof. Mario Gerla;
- **(summer 1999)** Visiting Researcher at Bell-Labs, Holmdel, NJ; involvement in the activities of Dr. Fabio Chiussi;
- **(Summer 2001)** Visiting Professor at Department of Electrical Engineering, Stanford University, Palo Alto, CA; involvement in the activities of Prof. Balaji Prabhakar.
- **(Summer 2003)** Visiting Researcher at Sprint Advanced Technologies Labs, involvement in the activities of Dr. Nina Taft;

## **PARTICIPATION TO PROJECTS**

- Participation in several National and European projects such as IST-SONATA, IST DAVID, NoE ePhoton-1 and NoE Euro-FGI. Participation in several consulting and research projects with private industries, including Lucent Technologies, British Telecom, Alcatel, IBM and TILAB, Microsoft Research.
- Scientific coordinator of the European 7-th FP STREP project NAPA-WINE on P2P streaming applications, involving 11 European research institutions, operators and manufacturers.

## **PARTICIPATION TO TPCs AND EDITORIAL BOARDS**

- Participation to the technical program committees of several conferences including IEEE Infocom 2000, 2007 and 2009 ACM MobiHoc 2007 and 2009 IEEE ICC 2005, 2006 and 2007, IEEE Globecom 2003 and 2004, IEEE WiOpt 2006 and 2007.
- Guest editor of the IEEE Journal on Selected Areas on Communications (JSAC); of two special issues on: “High-Performance Optical/Electronic Switches/Routers for High-Speed Internet”.

## **AWARDS**

- **(2002)** Recipient of the “IEEE TCGN Best Paper Award” at the “High Speed Networks Symposium”, IEEE Globecom.
- **(2006)** Recipient of the “Best Paper Award” at the Workshop on High Performance Switching and Routing (HPSR).
- **(2006)** Recipient of the “Best Paper Award” at the 4-th IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS).

## **PATENTS**

- **(2002)** He holds three patents regarding a “Scheduling Algorithm for High-Performance Input Queued Switches”.

## **RESEARCH INTERESTS**

- P2P architectures;

- Wireless Networks;
- Switching Architectures and Scheduling Algorithms;
- Queueing Theory .

# SELECTED PUBLICATIONS

## Journals

- R1 M.Ajmone Marsan, A.Bianco, E.Leonardi, F.Neri, “Topologies for Wavelength-Routing All-Optical Networks”, *IEEE/ACM Transactions on Networking*, Vol. 1, No. 5, pp. 534–546, Ottobre 1993.
- R2 M.Ajmone Marsan, A.Bianco, E.Leonardi, M.Meo, F.Neri, “MAC Protocols and Fairness Control in WDM Multi-Rings with Tunable Transmitters and Fixed Receivers”, *IEEE Journal of Lightwave Technology, Special issue on Multiwavelength Optical Technology and Networks*, Vol. 14, No. 6, pp. 1230–1244, Giugno 1996.
- R3 L.Kleinrock, M.Gerla, N.Bambos, E.Gafni, J.Cong, L.Bergman, J.Bannister, S.Monacos, T.Bujerskj, P.Hu, B.Kannan, B.Kwan, E.Leonardi, J.Peck, P.Palnati, S.Walton, “The Supercomputer Supernet Testbed: A WDM Based Supercomputer Interconnect”, *IEEE/OSA Journal on Lightwave Technology*, Vol. 14, No. 6, pp. 1388–1399, Giugno 1996.
- R4 M.Gerla, E.Leonardi, F.Neri, P.Palnati, “Congestion Control in Asynchronous, High-Speed Wormhole Routing Networks”, *IEEE Communications Magazine, Feature Topic on Flow and Congestion Control*, G.Omidyar, G.Pujolle (ed.), Vol. 11, No. 34, pp. 58–69, Novembre 1996.
- R5 M.Ajmone Marsan, A.Bianco, E.Leonardi, “RPA: a Simple, Efficient and Flexible Policy for Input Buffered TM Switches”, *IEEE Communications Letters*, Vol. 1, No. 3, pp. 83–86, Maggio 1997. .
- R6 M.Ajmone Marsan, A.Fumagalli, E.Leonardi, F.Neri, P.Poggiolini, “Daisy: a Scalable All-Optical Packet Network with Multifiber Ring Topology”, *Computer Networks and ISDN Systems*, Vol. 30, pp. 1065–1082, 1998.
- R7 M.Ajmone Marsan, A.Bianco, E.Leonardi, A.Morabito, F.Neri, “All-Optical WDM Multi-Rings with Differentiated QoS”, *IEEE Communications Magazine, Feature Topic on Optical Networks and Communications Systems*, Vol. 37, No. 2, pp. 58–66, Febbraio 1999.
- R8 M.Ajmone Marsan, A.Bianco, E.Filippi, P.Giaccone, E.Leonardi, F.Neri, “On the Behavior of Input Queuing Switch Architectures”, *European Transactions on Telecommunications (ETT), Special Issue on Architectures, Protocols and Quality of Service for the Internet of the Future: Advances in ATM Networks*, Vol. 10, No. 2, pp. 111–124, Marzo/Aprile 1999.
- R9 M.Ajmone Marsan, A.Bianco, E.Leonardi, L.Milia, “RPA: A Flexible Scheduling Algorithm for Input Buffered Switches”, *IEEE Transactions on Communications*, Vol. 47, No. 12, pp. 1921–1933, Dicembre 1999.

- R10 M.Ajmone Marsan, E.Leonardi, M.Meo, F.Neri, “Modeling Slotted WDM Rings with Discrete-Time Markovian Models”, *Computer Networks, Special issue on Optical Networks For New Generation Internet and Data Communication Systems*, Vol. 32, pp. 599–615, 2000.
- R11 A.Bianco, V.Distefano, A.Fumagalli, E.Leonardi, F.Neri, “A-Posteriori Versus A-Priori Access Strategies in Slotted All-Optical WDM Rings”, *Computer Networks, Special issue on Optical Networks For New Generation Internet and Data Communication Systems*, Vol. 32, pp. 617–631, 2000.
- R12 E.Leonardi, M.Mellia, M.Ajmone Marsan, “Algorithms for the Topology Design in WDM All-Optical Networks”, *Optical Networks Magazine, Premiere Issue*, Vol. 1, No. 1, pp. 35–46, Gennaio 2000.
- R13 A.Bianco, G.Galante, E.Leonardi, M.Mellia, “Analysis of Call Blocking Probability in TDM/WDM Networks with Transparency Constraint”, *IEEE Communications Letters*, Vol. 4, No. 3, pp. 104–106, Marzo 2000.
- R14 M.Ajmone Marsan, A.Bianco, E.Leonardi, F.Neri, A.Nucci, “Multihop Packet Scheduling in WDM/TDM Networks with Nonnegligible Transceiver Tuning Times”, *IEEE Transactions on Communications*, Vol. 48, No. 4, pp. 692–703, Aprile 2000.
- R15 G.Caire, E.Leonardi, E.Viterbo, “Modulation and Coding for the Gaussian Collision Channel”, *IEEE Transactions on Information Theory*, Vol. 46, No. 6, Settembre 2000.
- R16 A.Bianco, E.Leonardi, M.Mellia, F.Neri, “Network Controller Design for SONATA, a Large Scale All-Optical Passive Network”, *IEEE Journal on Selected Areas in Communications*, Vol. 18, No. 10, pp. 2017–2028, Ottobre 2000.
- R17 M.Ajmone Marsan, G.De Carolis, E.Leonardi, R.Lo Cigno, M.Meo, “Efficient Estimation of Call Blocking Probabilities in Cellular Mobile Telephony Networks with Customer Retrials”, *IEEE Journal on Selected Areas in Communications – JSAC*, Vol. 19, No. 2, Febbraio 2001.
- R18 M.Gerla, E.Leonardi, F.Neri, P.Palnati, “Routing in the Bidirectional Shufflenet”, *IEEE/ACM Transactions on Networking*, Vol. 9, No. 1, pp. 91–103, Febbraio 2001.
- R19 E.Leonardi, M.Mellia, F.Neri, M.Ajmone Marsan, “On the stability of Input-Queued Switches with Speed-up”, *IEEE/ACM Transactions on Networking*, Vol. 9, No. 1, pp. 104–118, Febbraio 2001.
- R20 A.Grosso, E.Leonardi, M.Mellia, A.Nucci, “Logical Topologies Design over WDM Wavelength Routed Networks Robust to Traffic Uncertainties”, *IEEE Communications Letters*, Vol. 5, No. 4, pp. 172–174, Aprile 2001.
- R21 M. Ajmone Marsan, A. Bianco, P. Giaccone, E. Leonardi, F.Neri, Packet Scheduling in Input-Buffered Cell-Based Switches, *Computer Networks*, Vol 37, No. 5, pp. 541-559, 2001.

- R22 M.Ajmone Marsan, A. Bianco, P.Giaccone, E.Leonardi, F.Neri, “Packet-Mode Scheduling in Input-Queued Cell-Based Switches”, *IEEE/ACM Transactions on Networking*, Vol. 10, No. 5, Ottobre 2002, pp. 666-678.
- R23 A. Bianco, M. Guido, E. Leonardi, “Incremental Scheduling Algorithms for WDM/TDM Networks With Arbitrary Tuning Latencies”, *IEEE Transactions on Communications*, Vol 51, n 3, pp 464-575, Marzo 2003.
- R24 M. Ajmone Marsan, F. Chiussi, A. Francini, G. Galante, E. Leonardi, “Compression of Multicast Labels in Large Input Queued IP Routers”, *IEEE Journal on Selected Areas of Communications*, Vol 21, No. 4, pp 630- 641, Maggio 2003.
- R25 M. Ajmone Marsan, P.Giaccone, E.Leonardi, F.Neri, “On the Stability of Local Scheduling Policies in Networks of Packet Switches with Input Queues”, *IEEE Journal on Selected Areas of Communications*, Vol 21, No. 4, pp 642-655, Maggio 2003.
- R26 M. Ajmone Marsan, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, “ Multicast Traffic in Input-Queued Switches: Optimal Scheduling and Maximum Throughput”, *IEEE/ACM Transactions on Networking*, Vol 11, No. 3, pp 465-476. Giugno 2003
- R27 E. Leonardi, M. Mellia, F. Neri, M. Ajmone Marsan, “Bounds on Delays and Queue Length in Input-Queued Cell Switches”, *Journal of the ACM*, Vol. 50, No. 4, Luglio 2003.
- R28 A. Bianco, G. Galante, E. Leonardi, F. Neri, Antonio Nucci “Scheduling algorithms for multicast traffic in TDM/WDM networks with arbitrary tuning latencies”, *Computer Networks*, Vol 41, pp 727-742, 2003.
- R29 P. Giaccone, E. Leonardi, B. Prabhakar, D. Shah, “Delay Bounds for Combined Input Output Switches with Low Speedup”, *Performance Evaluation*, Vol. 55, pp 113-128, 2004.
- R30 A. Bianco, D. Careglio, J. Finochietto, G. Galante, E.Leonardi, F. Neri, J. Solè-Pareta, S. Spadaro, “Multi-Class Scheduling Algorithms for the DAVID Metro Networks” *IEEE Journal on selected Areas on Communications*, Vol 22, No. 8 , pp 1483-1496, Ottobre 2004.
- R31 A. Nucci, B. Sansò, T. Crainic, E. Leonardi, M. Ajmone Marsan, “On the Design of Fault-Tolerant Logical Topologies in Wavelength-Routed Networks supporting Packet Datagrams” *IEEE Journal on selected Areas on Communications special series on Optical Communication Networks*, Vol 22, No. 9 , pp 1884-1895, Novembre 2004.
- R32 M. Ajmone Marsan, M. Franceschinis, E. Leonardi, F. Neri, A. Tarello, “Underload Instabilities in Packet Networks With Flow Schedulers”, *IEEE/ACM Transactions on Networking*, Vol 12, No. 6, Dicembre 2004.
- R33 E. Leonardi, M. Mellia, M. Ajmone Marsan, F. Neri, “On the Stability of Isolated and Interconnected Input-Queueing Switches under Multiclass Traffic”, *IEEE Transactions on Information Theory*, Vol. 51, No. 3 pp 1167-1174, Marzo 2005.

- R34 M. Ajmone Marsan, M. Garetto, P. Giaccone, E. Leonardi, E. Schiattarella, A. Tarello, "Using Partial Differential Equations to Model TCP Mice and Elephants in Large IP Networks", *IEEE/ACM Transactions on Networking*, Vol 13, No. 6, pp 1289-1301, Dicembre 2005.
- R35 E. Wille, M. Mellia E. Leonardi, M. Ajmone Marsan, "Algorithms for IP Design with End-to-End QoS Constraints", *Computer Networks* Vol 50, pp. 1086-1103 Giugno 2006.
- R36 G. Carofiglio, M. Garetto, E. Leonardi, A. Tarello, M. Ajmone Marsan, "Beyond Fluid Models: Modelling TCP Mice in IP Networks", *Computer Networks*, Vol 51, pp. 114-133, Gennaio 2007.
- R37 P. Giaccone, E. Leonardi, D. Shah, "Throughput Region of Finite-Buffered Networks", *IEEE Transactions on Parallel and Distributed Systems*, Vol 18, No 2, Febbraio, 2007.
- R38 A. Soule, A. Nucci, R. Cruz, E. Leonardi, N. Taft "Estimating Dynamic Traffic Matrices by using Viable Routing Changes" *IEEE Transactions on Networking*, Vol 15, No. 3, PP. 485-499, Agosto 2007.
- R39 M. Garetto, E. Leonardi, "Analysis of Random Mobility Models with Partial Differential Equations", *IEEE Transactions on Mobile Computing*, Vol6, No. 11, pp 1204-1217, Novembre 2007.
- R40 E. Leonardi, M. Mellia, M. Ajmone Marsan, F. Neri, "Optimal Scheduling and Routing for Maximum Network Throughput", *IEEE Transactions on Networking*, Vol 15, No, 6, pp 1541-1554, Dicembre 2007.
- R41 P. Giaccone, E. Leonardi, "Asymptotic Performance Limits of Switches with Buffered Crossbars supporting Multicast Traffic" *IEEE Transactions on Information Theory*, Vol. 54, No. 2, pp 595-607, Febbraio 2008.
- R42 E. Leonardi, M. Mellia, A. Horvart, L. Muscariello, S. Niccolini, D. Rossi "Building a Cooperative P2P-TV Application over a Wise Network: The approach of the European FP-7 STREP NAPA-WINE", *IEEE Communication Magazine*, Vol 46, No. 4. pp 20-22, Aprile 2008.
- R43 M. Garetto, P. Giaccone, E. Leonardi, "On the Capacity Region of MANET: Scheduling and Routing Strategy", *IEEE Transactions on Vehicular Technology*, Vol. 58, No.. 4, pp. 1930-1941, Maggio 2009.
- R44 V. Alaria, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, "Multi-hop Scheduling Algorithms in Switches with Reconfiguration Latency", *IEEE/OSA Journal of Optical Communications and Networks*, Special issues on "The Role of Optical and Electronic Technologies for large Capacity Switches and Routers", Vol 1, n 3, Agosto 2009.
- R45 G. Carofiglio, C.F. Chiasserini M. Garetto, E. Leonardi, "Route Stability in MANETs under the Random Direction Mobility Model", *IEEE Transactions on Mobile Computing*, Vol. 8, n.9, pp 1167-1179, Settembre 2009.

- R46 G. Alfano, M. Garetto, E. Leonardi, “Capacity Scaling of Wireless Networks with Inhomogeneous Node Density: Upper Bounds”, *IEEE Journal on Selected Areas in Communications*, Special issues on “Stochastic Geometry and Random Graphs for Wireless Networks”, Vol 27 n. 7, Settembre. 2009.
- R47 M. Garetto, P. Giaccone, E. Leonardi, “Capacity Scaling in Ad Hoc Networks with Heterogeneous Mobile Nodes: the Super-critical Regime”, *IEEE Transactions on Networking*, Vol. 17, n. 5. pp. 1522-1535, Ottobre 2009.
- R48 M. Garetto, P. Giaccone, E. Leonardi, “Capacity Scaling in Ad Hoc Networks with Heterogeneous Mobile Nodes: the Sub-critical Regime”, *IEEE Transactions on Networking* Vol. 17, n. 6. pp. 1888-1901, Dicembre 2009.
- R49 D. Ciullo, A. Garcia, A. Horvath, E. Leonardi, M. Mellia, D. Rossi, M. Telek, P. Veglia “Network Awareness of P2P Live Streaming Applications: a Measurement Study”, *IEEE Transactions on Multimedia* Vol.12 n. 1, pp. 54-63. Gennaio 2010.
- R50 A. Couto da Silva, E. Leonardi, M. Mellia, M. Meo, “”Chunk distribution in Mesh-Based Large Scale P2P Streaming Systems: A fluid approach”, accettato per la pubblicazione su *IEEE Transactions on Parallel and Distributed Systems*.
- R51 A. Couto da Silva, E. Leonardi, M. Mellia, M. Meo, “Exploiting Heterogeneity in P2P Video Streaming”, accettato per la pubblicazione su *IEEE Transactions on Computers*.
- R52 A. Forestiero, E. Leonardi, C. mastroianni, M.Meo, “Self-Chord: a Bio-Inspired P2P Framework for Self-Organizing Distributed Systems”, accettato per la pubblicazione su *IEEE Transactions on Networking*.
- R53 G. Alfano, M. Garetto, E. Leonardi, V. Martina, “Capacity Scaling of Wireless Networks with Inhomogeneous Node Density: Lower Bounds”, accettato per a pubblicazione su *IEEE Transactions on Networking*.
- R54 M. Garetto, E. Leonardi, “Restricted Mobility improves the Delay-Throughput Trade-offs in Mobile Ad-Hoc Networks”, accettato per la pubblicazione su *IEEE Transactions on Information Theory*.
- R55 V. Martina, M. Garetto, E. Leonardi “Capacity scaling of large wireless networks with heterogeneous clusters” accettato per la pubblicazione su *Performance Evaluation* special issue on “papers from IFIP Performance 2010”.
- R56 R. Birke, E. Leonardi, M. Mellia, A. Bakay, C. Kiraly, R. Lo Cigno, F. Mathieu, L. Muscariello, S. Niccolini, J. Seedorf, G. Tropea, T. Szemethy, “Architecture of a Network-Aware P2PTV Application: the NAPA-WINE Approach”, accettato per la pubblicazione su *IEEE Communication Magazine*.

## Conferences

- C1 M. Ajmone Marsan, G. Albertengo, A. Francese, E. Leonardi, F. Neri, “All-Optical Bidirectional Manhattan Networks”, *ICC'92*, Chicago (IL), Giugno 1992.
- C2 M. Ajmone Marsan, A. Bianco, E. Leonardi, F. Neri, “A Comparison of Regular Topologies for All-Optical Networks”, *IEEE Infocom'93*, San Francisco (CA), Marzo 1993.
- C3 M. Ajmone Marsan, A. Fumagalli, E. Leonardi, F. Neri, “An All-Optical Ring Network with Fast Tunable Sources”, *Summer Topical Meeting on Optical Networks and Their Enabling Technologies*, Lake Tahoe (CA), Luglio 1994.
- C4 M. Ajmone Marsan, A. Bianco, E. Leonardi, M. Meo, F. Neri, “On the Capacity of MAC Protocols for All-Optical WDM Multi-Rings with Tunable Transmitters and Fixed Receivers”, *IEEE INFOCOM'96*, San Francisco (CA), Marzo 1996.
- C5 M. Ajmone Marsan, A. Bianco, E. Gibert Abos, E. Leonardi, “Control Strategies for Switched Delay Lines in All-Optical Slotted WDM Rings”, *ICT'96*, Istanbul (Turkey), Aprile 1996.
- C6 M. Gerla, B. Kannan, B. Kwan, E. Leonardi, F. Neri, P. Palnati, S. Walton, “Quality of Service Support in High-Speed, Wormhole Routing Networks”, *IEEE ICNP'96*, Columbus, (OH), Ottobre 1996.
- C7 M. Gerla, E. Leonardi, F. Neri, P. Palnati, S. Walton, “Multicasting in Myrinet - A High Speed, Wormhole Routing Network”, *IEEE GLOBECOM'96*, London (UK), Novembre 1996.
- C8 M. Ajmone Marsan, A. Fumagalli, E. Leonardi, F. Neri, “Modelling Slotted Multi-Channel Ring Networks”, *IEEE MASCOTS'97*, Haifa (Israel), Gennaio 1997.
- C9 M. Ajmone Marsan, A. Bianco, E. Leonardi, A. Morabito, F. Neri, “SR<sup>3</sup>: A Bandwidth-Reservation MAC Protocol for Multimedia Applications over All-Optical WDM Multi-Rings”, *IEEE Infocom'97*, Kobe (Japan), Aprile 1997.
- C10 M. Ajmone Marsan, A. Bianco, E. Leonardi, F. Neri, S. Toniolo, “MetaRing Fairness Control Schemes in All-Optical WDM Rings”, *IEEE Infocom'97*, Kobe (Japan), Aprile 1997.
- C11 C. Roche, P. Palnati, M. Gerla, E. Leonardi, F. Neri. “Performance of Congestion Control Mechanisms in Wormhole Routing Networks”, *IEEE Infocom'97*, Kobe (Japan), Aprile 1997.

- C12 M. Ajmone Marsan, A. Bianco, E. Leonardi, F. Neri, S. Toniolo, "An Almost Optimal MAC Protocol for All-Optical WDM Multi-Rings with Tunable Transmitters and Fixed Receivers", *IEEE ICC'97*, Montreal (Canada), Giugno 1997.
- C13 M. Gerla, E. Leonardi, F. Neri, P. Palnati, "Minimum Distance Routing in the Bidirectional Shufflenet", *IEEE Infocom'98*, San Francisco (CA), Marzo 1998.
- C14 G. Caire, E. Leonardi, E. Viterbo, "Concatenated coding for Packet transmission over the collision Channel", *IEEE ISIT'98*, Boston (MA), Agosto 1998.
- C15 C. Casetti, E. Leonardi, F. Neri, C. Anglano, "Multicasting at Host Interface Level in Wormhole Networks", *IEEE ICNP '98*, Austin (TX), Ottobre 1998.
- C16 M. Ajmone Marsan, G. De Carolis, E. Leonardi, R. Lo Cigno, M. Meo, "An Approximate Model for the Computation of Blocking Probabilities in Cellular Networks with Repeated Calls", *11th ITC Specialists Seminar "Multimedia and Nomadic Communications"*, Yokohama (Japan), Ottobre 27-29, 1998.
- C17 M. Ajmone Marsan, A. Bianco, E. Leonardi, F. Neri, A. Nucci, "Multi-Hop Packet Scheduling in WDM/TDM Broadcast-and-Select Optical Networks with Arbitrary Transceiver Tuning Latencies", *IEEE GLOBECOM'98*, Sydney (Australia), Novembre 1998.
- C18 A. Bianco, E. Di Stefano, A. Fumagalli, E. Leonardi, F. Neri, "A Posteriori Access Strategies in All-Optical Slotted Rings", *IEEE GLOBECOM'98*, Sydney (Australia), Novembre 1998.
- C19 G. Caire, E. Leonardi, E. Viterbo, "Improving the Performance of Wireless Networks using Collision Resistent Modulations", *IEEE GLOBECOM'98*, Sydney (Australia), Novembre 1998.
- 9.
- C20 A. Bianco, S. Binetti, N.P. Caponio, A.M. Hill, E. Leonardi, F. Neri, R. Sabella, "Dimensioning of a Single Layer Optical Platform Based on the "Switchless" Concept for Large Scale Network", *IEEE/LEOS 11th Annual Meeting*, San Francisco (CA), Novembre 1999.
- C21 E. Leonardi, F. Neri, B. Yener, "Algorithms for Virtual Output Queued Switching", *IEEE GLOBECOM'99*, Rio de Janeiro (Brasil), Dicembre 1999.
- C22 M. Ajmone Marsan, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, "Scheduling in Input-Queued Cell-Based Packet Switches", *IEEE GLOBECOM'99*, Rio de Janeiro (Brasil), Dicembre 1999.
- C23 M. Ajmone Marsan, E. Leonardi, M. Mellia, F. Neri, "On the Stability of Input-Buffer Cell Switches with Speed-Up", *IEEE Infocom'00*, Tel-Aviv (Israel), Marzo 2000.

- C24 E. Leonardi, M. Mellia, M. Ajmone Marsan, F. Neri, “Stability of Maximal Size Matching Scheduling in Input-Queued Cell Switches”, *ICC’00*, New Orleans, (LA), Giugno 2000.
- C25 M. Ajmone Marsan, G. De Carolis, E. Leonardi, R. Lo Cigno, M. Meo, “Approximate Markovian Models of Cellular Mobile Telephone Networks with Customer Retrials”, *IEEE ICC’00*, New Orleans (LA), Giugno 2000.
- C26 A. Bianco, M. Guido, E. Leonardi, “Incremental Multi-Hop Scheduling Algorithms for All-Optical Broadcast-and-Select Networks with Arbitrary Tuning Latencies”, *IEEE GLOBECOM’00*, San Francisco (CA) Dicembre 2000.
- C27 M. Ajmone Marsan, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, “Packet Scheduling in Input-Queued Cell-Based Switches”, *IEEE Infocom’01*, Anchorage, (AK), Aprile 2001.
- C28 E. Leonardi, M. Mellia, F. Neri, M. Ajmone Marsan, “Bounds on Average Delays and Queue Size Averages and Variances in Input Queued Cell-Based Switches”, *IEEE Infocom’01*, Anchorage (AK), Aprile, 2001.
- C29 M. Ajmone Marsan, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, “On the Throughput in Input-Queued Cell-Based Switches with Multicast Traffic”, *IEEE Infocom’01*, Ankorage (AK), USA, Aprile 2001.
- C30 A. Bianco, E. Leonardi, M. Mellia, F. Neri, “Network Controller Design for SONATA, a Large Scale All-Optical WDM Network”, *IEEE ICC’01*, Helsinki (Finland), Giugno 2001.
- C31 M. Ajmone Marsan, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, “Optimal Multicast Scheduling in Input-Queued Switches”, *IEEE ICC’01*, Helsinki (Finland), Giugno 2001.
- C32 M. Mellia, A. Nucci, A. Grosso, E. Leonardi, M. Ajmone Marsan “Optimal Design of Logical Topologies in Wavelength-Routed Optical Networks with Multicast Traffic”, *IEEE GLOBECOM’01*, San Antonio (TX), Novembre 2001.
- C33 A. Bianco, G. Galante, E. Leonardi, F. Neri, A. Nucci, “Scheduling Algorithms for Multicast Traffic in TDM/WDM Networks with Arbitrary Tuning Latencies”, *IEEE GLOBECOM’01*, San Antonio (TX), Novembre 2001.
- C34 A. Nucci, B. Sanso, T. Crainic, E. Leonardi, M. Ajmone Marsan, “Design of Fault-Tolerant Logical Topologies in Wavelength-Routed Optical IP Networks ” *IEEE GLOBECOM’01*, San Antonio (TX), Novembre 2001.
- C35 M. Mellia, E. Leonardi, M. Feletig, R. Gaudino, F. Neri, “Exploiting OTDM in wavelength routed networks” *IEEE OFC’02*, Anhaim (CA), Marzo 2002.

- C36 E. Leonardi, M. Mellia, M. Ajmone Marsan, F. Neri, “On the Throughput Achievable by Isolated and Interconnected Input-Queueing Switches under Multiclass Traffic”. *IEEE Infocom’02*, New York (NY), Giugno 2002.
- C37 M. Mellia, E. Leonardi, M. Feletig, R. Gaudino, F. Neri, “Exploiting OTDM technology in WDM networks” *IEEE Infocom’02*, New York (NY), Giugno 2002.
- C38 A. Bianco, M. Franceschinis, S. Ghisolfi, A. Hill, E. Leonardi, F. Neri, R. Webb, “Frame-Based Matching Algorithms for Input-Queued Switches”, *IEEE HPSR’02*, Kobe (Japan), Maggio 2002.
- C39 S. Kumar, P. Giaccone, E. Leonardi, “Rate Stability of Stable-Marriage Scheduling Algorithms in Input-Queued Switches”, *40-th Annual Allerton Conference on Communication, Control and Computing*, Allerton (IL), Ottobre 2002.
- C40 F. Chiussi, A. Francini, G. Galante, E. Leonardi, “A Novel Highly-Scalable Matching Policy for Input-Queued Switches with Multiclass Traffic”, *IEEE GLOBECOM’02*, Taipei (Taiwan), Novembre 2002 **Il presente articolo ha ricevuto il premio: “IEEE-TCGN Best paper Award” quale migliore articolo presentato al “High Speed Network Symposium” di Globecom 2002.**
- C41 M. Ajmone Marsan, F. Chiussi, A. Francini, G. Galante, E. Leonardi, “Efficient Multicast Support in Large IP Routers”, *IEEE GLOBECOM’02*, Taipei (Taiwan), Novembre 2002.
- C42 P. Giaccone, E. Leonardi, B. Prabakhar, D. Shah, “Delay Performance of High-Speed Packet Switches with Low Speedup”, *IEEE GLOBECOM’02*, Taipei (Taiwan), Novembre 2002.
- C43 A. Bianco, E. Leonardi, M. Munafò, F. Neri, W. Picco, “Design of Optical Packet Switching Networks”, *IEEE GLOBECOM’02*, Taipei (Taiwan) Novembre 2002.
- C44 M. Ajmone Marsan, P. Giaccone, E. Leonardi, F. Neri, “Local Scheduling Policies in Networks of Packet Switches with Input Queues”, *IEEE Infocom’03*, San Francisco (CA) Marzo 2003.
- C45 M. Ajmone Marsan, M. Franceschinis, E. Leonardi, F. Neri, A. Tarello, “Instability Phenomena in Underloaded Packet Networks with QoS Schedulers”, *IEEE Infocom’03*, San Francisco (CA), Marzo 2003.
- C46 M. Ajmone Marsan, M. Franceschinis, P. Giaccone, E. Leonardi, F. Neri, A. Tarello, “Gated Asymptotic ModEls (GAMEs): A New Tool for the Stability Analysis of Queueing Systems”, *ACM SIGMETRICS’03*, presentazione poster, San Diego (CA), Giugno 2003.
- C47 A. Bianco, P. Giaccone, E. Leonardi, F. Neri, C. Piglione, “On the Number of Input Queues to Efficiently Support Multicast Traffic in Input-Queued Switches”, *IEEE HPSR’03* (High Performance Switching and Routing), Torino (Italy), Giugno 2003.

- C48 M. Ajmone Marsan, M. Franceschinis, P. Giaccone, E. Leonardi, F. Neri, A. Tarello, "Instability Phenomena in Underloaded Packet Networks with Elastic Traffic", *IEEE GLOBECOM'03*, San Francisco (CA) Dicembre 2003.
- C49 A. Bianco, P. Giaccone, E. Leonardi, F. Neri, "A Framework for Differential Frame-Based Matching Algorithms in Input-Queued Switches", *IEEE Infocom'04*, Hong Kong (China) Marzo 2004.
- C50 M. Ajmone Marsan, M. Garetto, P. Giaccone, E. Leonardi, E. Schiattarella, A. Tarello, "Using Partial Differential Equations to Model TCP Mice and Elephants in Large IP Networks", *IEEE Infocom'04*, Hong Kong (China), Marzo 2004.
- C51 A. Bianco, P. Giaccone, E. Leonardi, F. Neri, P. Rosa-Brusin, "Multihop scheduling for optical switches with large reconfiguration overhead", *IEEE HPSR'04* Phoenix, (AZ), Aprile 2004.
- C52 A. Soulè, A. Nucci, E. Leonardi, R. Cruz, N. Taft, "How to Identify and Estimate the Largest Traffic Matrix Elements in a Dynamical Environment", *ACM SIGMETRICS/IFIP PERFORMANCE Joint Conference*, New York (NY) Giugno 2004.
- C53 E. Wille, M. Garetto, M. Mellia, E. Leonardi, M. Ajmone Marsan, "Considering End-to-End QoS Constraints in IP Network Design and Planning", *Networks'04*, Wien (Austria), Giugno 2004.
- C54 P. Giaccone, E. Leonardi, D. Shah, "On the Maximal Throughput of Networks with Finite Buffers and its Application to Buffered Crossbars", *IEEE Infocom'05*, Miami (FL), Marzo 2005.
- C55 E. Leonardi, M. Mellia, M. Ajmone Marsan, F. Neri, "Joint Optimal Scheduling and Routing for Maximum Network Throughput", *IEEE Infocom'05*, Miami (FL), USA, Marzo 2005.
- C56 E. Wille, M. Mellia, E. Leonardi, M. Ajmone Marsan, "IP Network Design with End-to-End QoS Constraints: The VPN Case", *ITC-19*, Beijing (China) Agosto 2005.
- C57 P. Giaccone, E. Leonardi, F. Neri, "On the behavior of optimal scheduling algorithms under TCP sources", *International Zurich Seminar on Communications 2006*, Zurich (Switzerland), Febbraio 2006.
- C58 P. Giaccone, E. Leonardi, "Asymptotic Performance Limits of Switches with Buffered Crossbars Supporting Multicast Traffic", *IEEE Infocom'06*, Barcelona (Spain), Marzo 2006.
- C59 M. Garetto, E. Leonardi, "Analysis of Random Mobility Models with PDE's", *ACM MobiHoc'06*. Firenze, (Italy), Maggio 2006.

- C60 V. Alaria, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, "Design of switches with reconfiguration latency", *IEEE ICC'06*, Istanbul (Turkey), Giugno 2006.
- C61 V. Alaria, A. Bianco, P. Giaccone, E. Leonardi, F. Neri, "Multi-hop scheduling algorithms in switches with reconfiguration latency", *IEEE HPSR 06*, Poznam (Poland), Giugno 2006, **Vincitore del Best Paper Award**.
- C62 G. Carofiglio, R. Gaeta, M. Garetto, P. Giaccone, E. Leonardi, M. Sereno, "A Fluid-Diffusive Approach for Modelling P2P Systems", *IEEE MASCOTS'06*, Monterey (CA), Settembre 2006. **Vincitore del Best Paper Award**.
- C63 M. Garetto, P. Giaccone, E. Leonardi, "On the Capacity of Ad Hoc Wireless Networks Under General Node Mobility", *IEEE Infocom'07*, Anchorage (AK), USA, Maggio 2007.
- C64 M. Garetto, P. Giaccone, E. Leonardi, "On the Effectiveness of the 2-hop Routing Strategy in Mobile Ad Hoc Networks", *IEEE ICC'07*, Glasgow (UK) Giugno 2007.
- C65 A. Scicchitano, A. Bianco, P. Giaccone, E. Leonardi, E. Schiattarella, "Distributed scheduling in input queued switches", *IEEE ICC'07*, Glasgow (UK) Giugno 2007.
- C66 M. Garetto, P. Giaccone, E. Leonardi, "Capacity Scaling in Delay Tolerant Networks with Heterogeneous Mobile Nodes" *ACM MobiHoc'07*, Montreal, (Quebec), Settembre 2007.
- C67 M. Garetto, P. Gribaudo, C. F. Chiasserini, E. Leonardi, "A Distributed Sensor Relocation Scheme for Environmental Control" *The Fourth IEEE International Conference on Mobile Ad-hoc and Sensor Systems, (MASS'07)*, Pisa, (Italy), Ottobre 2007.
- C68 M. Garetto, P. Giaccone, E. Leonardi, "Capacity Scaling of Sparse Mobile Ad Hoc Networks", *IEEE Infocom'08*, Phoenix (AZ), USA, Aprile 2008.
- C69 A. Couto da Silva, M. Meo, E. Leonardi, M. Mellia "A Bandwidth-aware Scheduling Strategy for P2P-TV Systems", *IEEE P2P'08*, Aachen (Germany), Settembre 2008.
- C70 D. Ciullo, M. Mellia, M. Meo, E. Leonardi, "Understanding P2P-TV systems through on field measurements", *IEEE GLOBECOM'08*, New Orleans (LA), Dicembre 2008.
- C71 G. Alfano, M. garetto, E. Leonardi, "Capacity Scaling of Wireless Networks with Inhomogeneous Node Density: Lower Bounds", *IEEE Infocom'09*, Rio de Janeiro (Brasil), Aprile 2009.
- C72 E. Alessandria, M. Gallo, E. Leonardi, M. Mellia, M. Meo, "P2P-TV systems under adverse network conditions: a measurement study", *IEEE Infocom'09*, Rio de Janeiro (Brasil), Aprile 2009.

- C73 R. Lobb, A.P. Couto da Silva, E. Leonardi, M. Mellia, M. Meo, “Adaptive Overlay Topology for Mesh-Based P2P-TV Systems”, *ACM NOSSDAV’09*, Williamsburg (VA), Giugno 2009.
- C74 D. Croce, M. Mellia, E. Leonardi, “The Quest for Bandwidth Estimation Techniques for large-scale Distributed Systems”, *ACM HotMetrics’09*, Seattle (WA), Giugno 2009.
- C75 V. Martina, M. Garetto, E. Leonardi, “ Delay-Throughput Performance in Mobile Ad-Hoc Networks with Heterogeneous Nodes”, *ACM MSWIM 2009*, Canary Islands (Spain), Ottobre 2009.
- C76 D. Ciullo, V. Martina, M. Garetto, E. Leonardi, “Impact of Correlated Mobility on Delay-Throughput Performance in Mobile Ad-Hoc Networks”, *IEEE Infocom’10*, San Diego (CA), Marzo 2010.
- C77 M.Garetto, A. Nordio, C. Chiasserini, E. Leonardi, “Information-theoretic Capacity of Clustered Random Networks”, *IEEE ISIT’10* Austin (TX), Giugno 2010.
- C78 R. Fortuna, E. Leonardi, M. Mellia, M. Meo, S. Traverso, “Impact of Overlay Topology and Video-Aware Scheduling in P2P Streaming Systems,” *10th IEEE International Conference on Peer-to-Peer Computing 2010 - IEEE P2P 2010*, Delft, Netherlands, Agosto 2010.
- C79 L. Abeni, A. Bakay, M. Biazzi, R. Birke, C. Kiraly, E. Leonardi, R. Lo Cigno, M. Mellia, S. Niccolini, J. Seedorf, T. Sxemethy, G. Tropea, “ Network Friendly P2P-TV: The Napa-Wine Approach”, *10th IEEE International Conference on Peer-to-Peer Computing 2010 - IEEE P2P 2010*, Delft, Netherlands, Agosto 2010.