

# CURRICULUM VITAE

## Stavros Toumpis

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### Research Interests

#### Capacity of Wireless Networks

I investigate theoretical bounds on the performance of wireless networks, with an emphasis on recently proposed topologies that are under intense investigation by the research community, such as wireless sensor networks, wireless delay tolerant networks, etc. I study issues like the formation of bottlenecks, the optimal allocation of power, the optimal placement of nodes, tradeoffs between packet delivery delay and other performance metrics, etc. I use a variety of mathematical tools, for example probability theory, calculus of variations, information theory, optimization, as well as mathematics used in branches of Physics such as Electrostatics and Optics.

#### Applied Probability and Stochastic Processes

I use probability tools to model sources of randomness in wireless networks such as node placement, channel conditions, and traffic patterns. Based on probabilistic modeling, I derive bounds on the network performance that hold with high probability, for example with probability approaching unity as the number of nodes in the network increases.

#### Protocol Design of Wireless Networks

I design and investigate the performance of protocols for performing, among others, routing, power control and medium access control in wireless networks. I am also working on problems related to the transportation of data through networks with limited capacity. My emphasis is on designs that span multiple layers of the ISO/OSI structure. I evaluate the performance of protocols with analysis and simulations, and I compare it, whenever possible, with theoretical upper bounds that hold irrespective of the protocols used.

### Education

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| 1999-2003 | <i>Ph.D.</i> in Electrical Engineering, Stanford University, USA<br><b>Adviser:</b> Prof. Andrea J. Goldsmith<br><b>Dissertation:</b> Capacity and Cross-Layer Design of Wireless Ad Hoc Networks   |
| 2001-2003 | <i>M.S.</i> in Mathematics, Stanford University, USA  |
| 1997-1999 | <i>M.S.</i> in Electrical Engineering, Stanford University, USA   |
| 1992-1997 | <i>Diploma</i> in Electrical and Computer Engineering, National Technical University of Athens<br><b>GPA:</b> 9.38/10<br><b>Thesis Adviser:</b> Prof. P. G. Cottis<br><b>Thesis Title:</b> The Far Field of a Point Source Radiating in an Unbounded Biaxially Anisotropic Medium |

### Work Experience

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|------------------|--|
| 02/2009- PRESENT | Assistant Professor, <i>Athens University of Business and Economics, Computer Science Department</i> |
| 08/2005- 02/2009 | Lecturer, <i>University of Cyprus, Department of Electrical and Computer Engineering</i>             |

10/2003- 08/2005	Adjunct Lecturer (Univ. Lektor – n. r.), <i>Technical University of Vienna (TU Wien), Austria</i>
08/2003-08/2005	Senior Researcher, <i>Vienna Telecommunications Research Center (ftw.), Austria</i>
1999-2003	Research Assistant, <i>Wireless Systems Lab, Stanford University, USA</i>
1997-1999	Research Assistant, <i>STARLab, Stanford University, USA</i>

## Participation in Research Projects

1. **I-CAN (Information-Centric future mobile and wireless Access Networks)**: ARISTIA II Project (PI: G. Polyzos. Duration: 2014-2015).
2. **CROWN (Optimal Control of self Organized Wireless Networks)**: THALES Project (PI: A. Hatzigeorgiou. S. Toumpis is head of AUEB team. AUEB Budget: ~200,000€, Duration:2012-2015)
3. **DISCO (Distributed Wireless Communications)**: Thales Project (PI: G. Karystinos. Duration: 2012-2015)
4. **MOMO (Multi-Overlays for Multi-hOming – A wireless Mesh Network Use Case)**: Euro-nf specific joint research proposal (PI of AUEB team: G. Stamoulis. Duration: 10/2010-9/2011)
5. **“Weighted Congestion Games and Radio Resource Management in Wireless Networks”**: Basic Research Support Program of the AUEB. (PI: G. Polyzos. Duration: 2010-2011).
6. **“Spectral equivalence of Ill-Conditioned Toeplitz matrices with matrix algebras matrices”**: Basic Research Support Program of the AUEB. (PI: P. Vassalos. Duration: 2009-2010).
7. **“Strategies for Solving Ill-Conditioned Toeplitz and Toeplitz-like Systems Optimally”**: Basic Research Support Program of the AUEB (PI: P. Vassalos. Duration: 2008-2009).
8. **NETREFOUND (NETwork Research FOUNDations)**: FP6 FET STREP on Networking Foundations. Duration: 2006-2009.
9. **CRUISE (CReating Ubiquitous Intelligent Sensing Environments)**: FP6 Network of Excellence in Sensor Networks. Duration: 2006-2007.
10. **NEWCOM (Network of Excellence in Wireless Communications)**: FP6 Network of Excellence in Wireless Communications, Duration: 2004-2007.

## Teaching Experience

### Independent Teaching

1. “Calculus I”, AUEB, 1<sup>st</sup> year calculus course, winter 2008-2009 to winter 2014-2015
2. “Probability Theory”, AUEB, introductory probability course for 2<sup>nd</sup> /1<sup>st</sup> year students, winter 2008-2009, spring 2010-2011 to 2014-2015
3. “Performance Analysis of Systems and Networks”, AUEB, 4<sup>th</sup> year/graduate level elective course, summer 2009-2010.
4. “Information Theory,” AUEB, 4<sup>th</sup> year/graduate level elective course, summers 2008-2009, 2011-2012, 2012-2013.
5. “Mathematical Models in Production II,” graduate level course for students enrolled in ‘Business Mathematics’ M.Sc. program, summer 2009-2010.
6. “ECE 635: Introduction to Optimization Theory and Applications”, University of Cyprus, winter 2007-2008
7. “ECE 453: Wireless Communication Networks,” University of Cyprus, winters 2006-2007, 2007-2008
8. “ECE 324: Introduction to Random Signals and Systems,” University of Cyprus, summers 2005-2006, 2006-2007
9. “ECE 621: Random Processes,” University of Cyprus, winters 2005-2006, 2006-2007, summer 2007-2008
10. “Point Processes for Communication Networks,”
  - a. Vienna University of Technology (Technische Universitaet Wien, TU Wien), spring 2004-2005.
11. “Wireless Ad Hoc Networks,”
  - a. Vienna University of Technology (Technische Universitaet Wien, TU Wien), winters 2003-2004, 2004-2005.
  - b. Technical University of Catalonia (Universitat Politecnica de Catalunya, UPC), April-May 2005 (20 hours course).

### Tutorials

- “(A Cynic’s) Recent History of Wireless Network Capacity Research,” Information Theory Summer School Technical University of Crete, 2010

- “Capacity of Wireless Networks”, IEEE International Workshop on Wireless Ad Hoc Networks, University of Oulu, Finland, May 2005
- “Capacity of Wireless Networks with a Large Number of Nodes”
  - Information Theory Winter School, Bratislava, Slovakia, Feb. 2005
  - Electronics Department, Politecnico di Torino, Apr. 2005
- “Wireless Ad Hoc Networks,” IEEE Sarnoff Symposium, Princeton, NJ, Apr. 2004

### Teaching Assistant

1. EE 261: Fourier Transforms, Stanford University. Preparation and teaching of supplementary lectures, summer quarter 1997-1998
2. EE 278: Statistical Signal Processing, Stanford University. Preparation and teaching of supplementary lectures, 1998-1999.

### Departmental Committee Participation

- Member of Undergraduate Studies Committee, Department of Informatics, AUEB, 2010-
- Member of Graduate Studies Committee, Department of ECE, UCY, 2005-2007

### Editorial Work

- **Editor** (Member of ‘International Board of Editors’), Performance Evaluation Journal, 2009-
- **Editor** (Member of ‘Editorial Board’), Computer Networks Journal, 2011-
- **Guest Editor**, Performance Evaluation Journal on special issue on WiOpt 2010..
- **Guest Editor**, Journal of Discrete Event Dynamic Systems, special session on Valuetools’08, Dec. 2010.
- **Guest Editor**, Computer Networks Journal, special issue on “New Network Paradigms”, Apr. 2010.
- **Guest Editor**, EURASIP Journal on Advances in Signal Processing, special issue in “Cross-Layer Design for the Physical, MAC, and Link Layer in Wireless Systems”, 2009
- **Guest Editor**, EURASIP Journal on Wireless Communications and Networks, special issue in “Novel Techniques for Analysis and Design of Cross-Layer Optimized Wireless Sensor Networks”, 2007.

### Conference Organization

- Steering Committee Member: WiOpt (2010-), Valuetools (2009-2013)
- Steering Committee Chair, WiOpt (2014-)
- Local Arrangements Chair, CTW 2016
- Publications Chair, ITW 2009
- TPC co-chair, Valuetools 2008
- Vice General Chair, Wiopt 2009
- Webmaster, Infocom 2007
- Local Arrangements Chair, WiOpt 2007
- Publicity Chair, WiOpt 2006
- Posters and Demos Chair, Med-Hoc-Net 2006

### Referee/Evaluator

- Has served as a reviewer for the following IEEE journals: Trans. on Communications, Trans. on Information Theory, Trans. on Networks, Trans. on Mobile Computing, Trans. on Wireless Communications, Trans. on Vehicular Technology, Journal on Select. Areas of Communications, Communication Letters, Wireless Communications, etc.
- Has served as a reviewer for the following IEEE conferences: Infocom, ISIT, ICC, PIMRC, ICCS, WCNC, ISCAS, WiOpt, VTC, ISCC, Globecom, IWWAN, etc.
- TPC member, Med-Hoc-Net 2005, 2006, 2007, WONS 2006, WCC (IFIP Ad Hoc Networking) 2006, IWWAN 2006, ICC 2007, 2009, 2011, SECON 2007, Infocom VANET Workshop 2007, Interperf 2007, ChinaCom 2007, RAWNET 2008-2009, 2011 PIMRC 2008, IFIP Wireless Days Conference 2008, IWCLD 2009, ISCC 2011, CHANTS 2013, MSWim 2013.

- Research project evaluator for Research Council of Norway (VERDIKT program)
- Research project evaluator for the Israel Science Foundation (Individual Research Grant Program)
- Research project evaluator for the European Commission (FP7 program)

## Miscellaneous

- Born on January 21<sup>st</sup>, 1975 in Athens, Greece. Greek citizen.
- Served in the Greek Army
- Professional memberships: IEEE, ACM.

## Student Advising

### Ph.D. Theses

- G. Konidaris. Thesis Title: “Network Optimization with Applications to Wireless Networks”. Expected graduation date: 2016.
- V. Douros (Main advisor: G Polyzos. S. Toumpis acted in unofficial capacity). Thesis Title: “Incentive Based Power Control in Wireless Networks of Autonomous Entities with Various Degrees of Cooperation”, Graduated 2014.
- A. Sidera (co-advised by Ch. Hadjicostis (UCY) and S. Toumpis). Thesis title: “Design and Analysis of Novel Routing Protocols for Vehicular Delay-Tolerant Networks”, Graduated 2015.

### M.Sc. Theses

- Theodosios Petridis, “Replication Algorithms in Cache Networks with time-varying file popularity,” ongoing M.Sc. Thesis, AUEB.
- Argyrios Tassiopoulos, “Delay/Cost Tradeoffs in Geographically Routed Delay Tolerant Networks,” M.Sc. Thesis, AUEB, 2012.
- Angelos Fatouros, “Power efficient multicasting in wireless ad hoc networks,” M.Sc. Thesis, AUEB, 2012.
- Georgios Konidaris, “Flow Optimization in Delay Tolerant Networks by Dual Decomposition: a numerical investigation,” M.Sc. Thesis, AUEB, 2011.
- Christos Tsiaras, “Efficient Minimization of Routing Cost in Delay tolerant Networks,” M.Sc. Thesis, AUEB, 2011.
- Ch. Christodouleas, “An Overview of Routing Problems and Solutions in Delay Tolerant Networks,” M.Sc. Thesis, AUEB, 2010.
- Ioannis Tselekounis, “A partially separable load balancing problem in wireless sensor networks,” M.Sc. thesis, AUEB, 2010.

### Undergraduate theses

- A Katsiolis, “Performance Evaluation of Cache Networks with time-varying file popularities,” ongoing Undergraduate Thesis, AUEB.
- E. Krokos, “Performance Evaluation of Opportunistic Wireless Ad Hoc Routing Protocols,” Undergraduate Thesis, AUEB, 2014.
- A. Tassiopoulos, “Geographical Routing in Delay Tolerant Networks,” Undergraduate Thesis, AUEB, 2009.
- A. Fatouros, “Geographical routing techniques in ad hoc wireless networks,” Undergraduate Thesis, 2009.
- C. Kosta, “Simulation and Performance Evaluation of 4G Cellular Networks,” Undergraduate Capstone Design Project, University of Cyprus, 2007.

### Ph.D. Examination Committees

- Eleni Agiatzidou, Athens University of Economics and Business, 2013
- Ioanna Papafili, Athens University of Economics and Business, 2013.
- Sergio Crisostomo, University of Porto / University of Klagenfurt, 2012.
- Nikolaos Pappas, University of Crete, 2011.
- Emmanouil Kafetzakis, University of Athens, 2011.
- Olga Fourtoullelli, Athens University of Economics and Business, 2010.

- Alonso Silva, École Supérieure d'Électricité, France, June 2010
- Jesus Alonso Zarate, UPC, Spain, Feb. 2009.
- M Anastasopoulos, National Technical University of Athens, 2009.

# LIST OF PUBLICATIONS

## Citations

- Google Scholar: 2056 citations, h-index=17 (self-citations included)

## Papers in Refereed Journals

- U. Schilcher, S. Toumpis, M. Haenggi, A. Crismani, G. Brandner, and Ch. Bettstetter, "Interference Functionals in Poisson Networks," accepted in *IEEE Transactions on Information Theory*, 2015.
- A. Crismani, S. Toumpis, U. Schilcher, G. Brandner, and C. Bettstetter, "Cooperative Relaying under Spatially and Temporally Correlated Interference," *IEEE Transactions on Vehicular Technology*, vol. 64, no. 10, pp. 4655-4669, Oct. 2015.
- A. G. Tasiopoulos, Ch. Tsiaras, and S. Toumpis, "On Optimal and Achievable Cost/Delay Tradeoffs in Delay Tolerant Networks," *Computer Networks journal*, Vol. 70, Sept. 2014, pp. 59-74.
- A. Sidera and S. Toumpis, "Delay Tolerant Firework Routing: A Geographic Routing Protocol for Wireless Delay Tolerant Networks," *EURASIP Journal on Wireless Communications and Networks*, 2013.
- R. Catanuto, S. Toumpis, and G. Morabito, "On Asymptotically Optimal Routing in Large Wireless Networks and Geometrical Optics Analogy," *Computer Networks*, vol. 53, no. 11, pp. 1939-1955, July 2009.
- G. A. Gupta, S. Toumpis, J. Sayir, and R. R. Mueller, "On the Transport Capacity of Gaussian Multiple Access and Broadcast Channels," *ACM/Baltzer Wireless Networks Journal*, vol. 14, no. 5, pp. 573-590, Oct. 2008.
- S. Toumpis, "Asymptotic Capacity Bounds for Wireless Networks with Non-Uniform Traffic Patterns," *IEEE Trans. Wireless Comm.*, vol. 7, no. 6, pp. 2231-2242, June 2008.
- S. Toumpis, "Mother Nature Knows Best: A Survey of Recent Results on Wireless Networks Based on Analogies with Physics," *Computer Networks*, vol. 52, no. 2, pp. 360-383, Feb. 2008.
- S. Toumpis and A. J. Goldsmith, "New Media Access Protocols for Wireless Ad Hoc Networks Based on Cross-Layer Principles," *IEEE Trans. on Wireless Commun.*, Aug. 2006, vol. 5, no. 8, pp. 2228-2241.
- G. A. Gupta and S. Toumpis, "Power Allocation over Parallel Gaussian Multiple Access and Broadcast Channels," *IEEE Trans. on Inform. Theory*, vol. 52, no. 7, pp. 3274-3282, July 2006.
- S. Toumpis and L. Tassiulas, "Optimal Deployment of Large Wireless Sensor Networks," *IEEE Trans. on Inform. Theory*, vol. 52, no. 7, pp. 2935-2953, July 2006.
- S. Toumpis and A. J. Goldsmith, "Capacity Regions for Wireless Ad Hoc Networks," *IEEE Trans. Wireless Comm.*, vol. 2, no. 4, pp. 736-748, July 2003.

## Book chapters

- S. Sargento, R. Matos, K. A. Hummel, A. Hess, S. Toumpis, Y. Tselekounis, G. D. Stamoulis, Y. Al-Hazmi, M. Ali, H. de Meer, "Multi-Access Communications in Wireless Mesh Networks by Virtualization," in "Wireless Multi-Access Environments and Quality of Service Provisioning," IGI Global, 2012.

## Papers in Refereed Conferences

- G. C. Polyzos, V. A. Siris, G. Xylomenos, G. F. Marias, and S. Toumpis, "I-CAN: Information-Centric Future Mobile and Wireless Access Networks," in *Proc. QSHINE*, Aug. 2014.
- S. Gitzenis, S. Toumpis, and L. Tassiulas, "Efficient File Replication in Large Wireless Networks with Dynamic Popularity," in *Proc. Q-ICN (QSHINE Workshop)*, Aug. 2014.
- V.G. Douros, S. Toumpis and G.C. Polyzos, "Channel Access Competition in Linear Multihop Device-to-Device Networks," *Proc. International Wireless Communications and Mobile Computing Conference (IWCMC)*, Nicosia, Cyprus, Aug. 2014.
- A. Crismani, U. Schilcher, S. Toumpis, G. Brandner, and C. Bettstetter, "Packet Travel Times in Wireless Relay Chains under Spatially and Temporally Dependent Interference," in *Proc. IEEE ICC, June 2014*.
- A. Sidera and S. Toumpis, "On the Delay/Cost Tradeoff in Wireless Mobile Delay-Tolerant Networks," in *Proc. WiOpt, Hammamet, Tunisia, May 2014*. pp. 452-459.

- V. G. Douros, S. Toumpis, and G. C. Polyzos, "On the Nash Equilibria of Graphical Games for Channel Access in Multihop Wireless Networks," in *IEEE WCNC 2014 – Workshop on Wireless Evolution Beyond 2020*, Apr. 2014.
- G. Konidaris, S. Toumpis, and S. Gitzenis, "Primal Decomposition and Online Algorithms for Flow Optimization in Wireless DTNs," in *Proc. IEEE Globecom*, Atlanta, GA, Dec. 2013, pp. 84-90.
- U. Schilcher, S. Toumpis, A. Crismani, G. Brandner, and Ch. Bettstetter, "How does interference dynamics influence packet delivery in cooperative relaying?," in *Proc. ACM MSWiM*, Barcelona, Spain, Nov. 2013, pp. 347-354.
- A. Sidera and S. Toumpis, "Routing Using Partition-Wide Information in Wireless Delay Tolerant Networks," *short paper in Proc. IFIP MedHocNet*, Ajaccio, France, June 2013, pp. 14-17.
- A. G. Tasiopoulos, Ch. Tsiaras, and S. Toumpis, "On the Cost/Delay Tradeoff of Wireless Delay Tolerant Geographic Routing," in *Proc. IEEE WOWMOM 2012*, San Francisco, CA, June 2012, pp. 1-9.
- V. G. Douros, S. Toumpis, G. Polyzos, "Power Control Under Best Response Dynamics for Interference Mitigation in a Two-Tier Femtocell Network", in *Proc. RAWNET 2012 (collocated with WiOpt 2012)*, Paderborn, Germany, May 2012, pp. 398-405.
- S. Gitzenis, G. Konidaris, and S. Toumpis, "Flow Optimization in Delay Tolerant Networks Using Dual Decomposition", in *Proc. RAWNET 2012 (collocated with WiOpt 2012)*, Paderborn, Germany, May 2012, pp. 444-451.
- S. Toumpis, I. Tselekounis, G. D. Stamoulis, H. Mayer, A. Hess, K. A. Hummel, "Cognitive WMNs: A Distributed Mechanism for Leasing Cellular Bandwidth," in *Proc. HotMesh 2011 (collocated with IEEE WoWMoM 2011)*, June 2011, Lucca, Italy.
- A. Sidera and S. Toumpis, "DTFR: A Geographic Routing Protocol for Wireless Delay Tolerant Networks," in *Proc. IFIP MedHocNet*, Favignana Island, Italy, June 2011, pp. 33-40.
- V.G. Douros, G. C. Polyzos and S. Toumpis, "Negotiation-Based Distributed Power Control in Wireless Networks with Autonomous Nodes," in *Proc. 73rd IEEE Vehicular Technology Conference (VTC2011-Spring)*, Budapest, Hungary, May 2011.
- V. G. Douros, G. C. Polyzos and S. Toumpis, "A Bargaining Approach to Power Control in Networks of Autonomous Wireless Entities," in *Proc. 8th ACM International Symposium on Mobility Management and Wireless Access (MobiWac)*, Bodrum, Turkey, Oct. 2010, pp.75-82.
- S. Toumpis and S. Gitzenis, "Load Balancing in Wireless Sensor Networks using Kirchoff's Voltage Law," in *Proc. IEEE Infocom 2009*, Rio de Janeiro, Brazil., Apr. 2009, pp. 1656-1664.
- R. Catanuto, S. Toumpis, and G. Morabito, "Opti{c,m}al: Optical/Optimal Routing in Massively Dense Wireless Networks", in *Proc. Infocom 2007*, Anchorage, AL, May 2007, pp.1010-1018.
- S. Toumpis, "Optimal Design and Operation of Massively Dense Wireless Networks (or How to Solve 21<sup>st</sup> Century Problems using 19<sup>th</sup> Century Mathematics)", in *Proc. Inter-Perf 2006*, Pisa, Italy, Oct. 2006, paper supported Keynote Talk (by invitation).
- R. Catanuto, G. Morabito, S. Toumpis, "Optical Routing in Massively Dense Networks: Practical Issues and Dynamic Programming Interpretation," in *Proc. 3<sup>rd</sup> International Symposium on Wireless Communication Systems*, Valencia, Spain, Sep. 2006, pp. 83-87 (by invitation).
- S. Toumpis and G. A. Gupta, "Optimal Placement of Nodes in Large Sensor Networks under a General Physical Layer Model," in *Proc. IEEE SECON 2005*, Santa Clara, CA, Sep. 2005, pp. 275-283.
- G. A. Gupta, S. Toumpis, J. Sayir, and R. R. Mueller, "Transport Capacity of Gaussian Multiple Access and Broadcast Channels with a Large Number of Nodes," in *Proc. IEEE ISIT*, Adelaide, Australia, Sep. 2005, pp. 1338-1342.
- I. Koutsopoulos, S. Toumpis, L. Tassiulas, "On the relation between Source and Channel Coding and Sensor Network Deployment," in *Proc. International Workshop on Wireless Ad Hoc Networks*, London, May 2005 (by invitation).
- G. A. Gupta, S. Toumpis, J. Sayir, and R. R. Mueller, "On the Transport Capacity of Gaussian Multiple Access and Broadcast Channels," in *Proc. WiOpt. 2005*, Riva del Garda, Italy, April 2005, pp. 10-20.
- S. Toumpis and L. Tassiulas, "Packetostatics: Deployment of Massively Dense Sensor Networks as an Electrostatics Problem," in *Proc. IEEE INFOCOM 2005*, vol. 4, Miami, FL, Mar. 2005, pp. 2290-2301.
- S. Toumpis, R. Mueller, and J. Sayir, "On the Transport Capacity of a Multiple Access Gaussian Channel," in *Proc. International Workshop on Wireless Ad Hoc Networks*, Oulu, Finland, May-June 2004, pp. 191-195.
- S. Toumpis and A. J. Goldsmith, "Performance Bounds for Large Wireless Networks with Mobile Nodes and Multicast Traffic," in *Proc. International Workshop on Wireless Ad Hoc Networks*, Oulu, Finland, May-June 2004, pp. 125-129.
- S. Toumpis, "Capacity Bounds for Three Classes of Wireless Networks: Asymmetric, Cluster, and Hybrid," in *Proc. ACM Mobihoc*, Tokyo, Japan, May 2004, pp. 133-144.

- S. Toumpis and A. J. Goldsmith, "Large Wireless Networks under Fading, Mobility, and Delay Constraints," in *Proc. IEEE INFOCOM*, Hong Kong, China, Mar. 2004, vol. 1, pp. 609-619.
- S. Toumpis, J. Sayir, and A. J. Goldsmith, "Capacity Results for Asymmetric Wireless Networks," in *Proc. International Zurich Seminar*, Zurich, Switzerland, Feb. 2004, pp. 180-183 (by invitation).
- S. Toumpis and A. J. Goldsmith, "Capacity Bounds for Large Wireless Networks under Fading and Node Mobility," in *Proc. Allerton Conference on Communications, Control, and Computing*, Allerton, IL, Oct. 2003, pp. 1369-1378.
- S. Toumpis and A. J. Goldsmith, "Performance, Optimization, and Cross-Layer Design of Media Access Protocols for Wireless Ad Hoc Networks," in *Proc. International Conference on Communications (ICC)*, Anchorage, AK, May 2003, pp. 2234-2240, vol. 3.
- S. Toumpis and A. J. Goldsmith, "Capacity Regions for Wireless Ad Hoc Networks," in *Proc. IEEE International Conference on Communications (ICC)*, New York, NY, Apr.-May 2002, vol. 5, pp. 3168-3173.
- G. L. Tyler, K. L. Kusza, S. Toumpis, and B. Ahmad, "Effects of Atmospheric Multipath Propagation on Radio Occultation Observables," in *Proc. XXVII URSI 2002 General Assembly (GA)*, Maastricht, the Netherlands. Abstract #1925, Oral Presentation Programme, XXVII GA, p. 128, Aug. 2002.
- S. Toumpis and A. J. Goldsmith, "Capacity Regions for Wireless Ad Hoc Networks," in *Proc. International Symposium on Communication Theory and Applications*, Ambleside, Lake District, UK, July 2001 (by invitation).
- S. Toumpis and A. J. Goldsmith, "Ad Hoc Network Capacity," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Oct.-Nov. 2000, vol. 2, pp. 1265-1269.
- S. Toumpis and A. J. Goldsmith, "Some Results for Ad Hoc Networks," in *Proc. Allerton Conference on Communications, Control, and Computing*, Allerton, IL, Oct. 2000, vol. 2, pp. 775-784 (by invitation).
- G. L. Tyler, S. Toumpis, B. Ahmad, and D. P. Hinson, "Measurement Requirements for Radio Occultation," in *Proc. URSI 1999 General Assembly*, Toronto, Canada, Aug. 1999.

## Technical Reports

- S. Toumpis and A. J. Goldsmith, "On the Capacity of Three-dimensional Wireless Ad Hoc Networks," Technical Report SU WSL-2003-07-22, Engineering Library, Stanford University, Stanford, CA 94305, July 22<sup>nd</sup>, 2003.
- S. Toumpis and A. J. Goldsmith, "On the Capacity of Large Wireless Networks under Fading, Mobility, and Delay Constraints," Technical Report SU WSL-2003-07-23, Engineering Library, Stanford University, Stanford, CA, 94305, July 23<sup>rd</sup>, 2003.

## Course Readers

- "Notes in Mathematics I", 340-page course reader (in Greek), 2011
- "Notes in Probability Theory", 240-page course reader (in Greek, jointly authored with I. Kontoyiannis), 2011

## Other

- S. Toumpis, "Capacity and Cross-Layer Design of Wireless Ad Hoc Networks," Ph.D. Thesis, Stanford University, 2003.
- S. Toumpis, "The Far Field of a Point Source Radiating in an Unbounded Biaxially Anisotropic Medium," Diploma Thesis, National Technical University of Athens, 1997.
- S. Toumpis and D. Toumpakaris, "Wireless Ad Hoc Networks and Related Topologies: Applications and Research Challenges," *Electrotechnik & Informationstechnik*, Vol. 123, No. 6, pp. 232-241, June 2006.