

Konstantinos (Kostas) Christodoulopoulos

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RESEARCH INTERESTS

- Telecom and datacom networks, planning and dynamic operation
 - Combinatorial optimization, linear and convex optimization, algorithms, machine learning and artificial intelligence
 - Optical network architectures, deterministic and low-latency networking, Time-Sensitive Networking (TSN), cloud and edge computing networks
 - Software Defined Networking (SDN), dynamic network control and management
 - Performance evaluation and analysis of networks and algorithms
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PROFESSIONAL EXPERIENCE

- 9/2022-** Assistant Professor, Department of Informatics and Telecommunications, University of Athens, Greece
- Teaching
 - Computer Networks II (5th semester, Track Compulsory course), sole instructor, 2022–
 - Advanced Network Architectures (M.Sc. Computer, Telecommunications and Network Engineering), sole instructor, 2022–
 - Computer Networks Laboratory (2022–2025), co-instructor
 - Signals and Systems (3rd semester, Compulsory course), 2025–
 - Projects:
 - Determined "Designing and Configuring Deterministic Network Domains for Industry 4.0 and Centralized 5G/6G Virtual Functions", 2 years, Hellenic Foundation for Research and Innovation (ΕΛΙΔΕΚ), Greece, 11/2023 -
 - Supervised of 5 thesis, 5 diploma thesis, 10 internships
 - Ongoing supervision: 1 Ph.D. student
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- 9/2018-** Member of Technical Staff (Senior Researcher)
8/2022 Nokia Bell Labs, Stuttgart, Germany
- Passive Optical Networks (PON)
 - Work on next generation PON architectures, fixed-mobile networks convergence, Dynamic Bandwidth Allocation (DBA), deterministic (low latency and jitter) DBA, co-operative DBA, multi-tenancy in PON
 - Low latency and deterministic networks for Industry 4.0
 - Work on a novel backbone network (Industrial Optical Ethernet - IOE) for
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	- deterministic applications, multi-domain control and scheduling ○ Prototype development (FPGA) of IOE and experiments with TSN switches ○ Research on IEEE TSN Qbu (preemption) and Qbv (time aware shaping) networks, scheduling for TSN Qbv - Metro and Core optical networks efficiency ○ Machine learning for optical physical layer modeling, optimization algorithms to improve network performance and efficiency - Supervision of Marie Curie ITN European Industrial Doctorate (Ph.D.) students ○ F. Locatelli, A. Mahajan
1/2016	– Senior Researcher
9/2018	School of Electrical and Computer Eng., National Technical University of Athens, - Contribution to project coordination, Work Package (WP) leader, and research on ORCHESTRA project (Optical Performance Monitoring Enabling Dynamic Networks using a Holistic Cross-layer, Self-configurable flexible Approach), E.C. Horizon 2020 ○ Technical coordination of consortium consisting of 6 partners, resources planning, supervision of deliverables, interactions with E.C. ○ Developed optimization module and interfaces to SDN controller to enhance the efficiency of optical networks based on physical-layer monitoring/feedback ○ Planned and participated in joint lab experiments and a field trial demonstration (at Telecom Italia premises) - Research work on 5G-phos project (5G integrated Fiber-Wireless networks exploiting existing photonic technologies for high-density SDN-programmable network architectures), E.C. Horizon 2020 5GPPP ○ Research on resource allocation in converged wireless/wired networks - Postdoctoral Scholarship (IKY), “Algorithms for optimization and self-adaptation of Elastic Optical Networks” - Ph.D. and M.Sc. students supervision - Research proposals write-up
8/2013–	Senior Researcher
1/2016	Department of Computer Engineering and Informatics, University of Patras, and Computer Technology Institute and Press, Patra, Greece - Work Package (WP) leader, and research work on NEPHELE project (End-to-end Scalable and Dynamically Reconfigurable Optical Architecture for Application-aware SDN Cloud Datacenters), E.C. Horizon 2020 ○ Coordination of WP consisting of 4 (European) partners, supervision of WP deliverables ○ Developed a scheduler module and interfaces to SDN controller to dynamically allocate resources in a time-switched optical datacenter ○ Contributed to the development of a prototype time-switched optical datacenter controlled through SDN and joint lab experiments - Work Package leader on EEONPO project (Energy Efficient Optical Network Planning and Operation), Greek General Secretariat for Research and Technology (GSRT) ○ Coordination of WP consisting of 3 (Greek) partners

	○ Developed a tool for energy-optimized planning of optical networks, also research on energy-efficient dynamic operation - Research work on IDEALIST project (Industry-Driven Elastic and Adaptive Lambda Infrastructure for Service and Transport Networks), E.C. FP7 ○ Research on cost optimized planning of elastic optical networks, dynamic network operation for statistical multiplexing gains - Research work on Phox-Trot project (Photonics for High-Performance, Low-Cost & Low-Energy Data Centers, High Performance Computing Systems: Terabit/s Optical Interconnect Technologies), E.C. FP7 ○ Research on network architecture and design of optical printed circuit boards for datacenter and high performance computing networks - Supervised Ph.D. and M.Sc. students - Research proposals write-up
8/2011– 8/2013	Researcher & Contractor Senior Researcher in Trinity College Dublin and contractor for IBM Ireland, Ireland Postdoctoral fellowship: “Hybrid optical interconnects for Exascale computing” Co-founded by IBM and Irish Research Council. - Research on scheduling algorithms and developed a scheduler for dynamic operation of optical circuit-switched datacenters - Contributed to optical circuit-switched datacenter prototype at IBM Dublin
2/2010– 8/2011	Adjunct Assistant Professor Department of Computer Engineering and Informatics, University of Patras, Greece Taught courses - Computer Networks Laboratory, autumn, academic year 2010-2011 - Micro-computers I laboratory, autumn, academic year 2010-2011 - Micro-computers II, spring, academic year 2009-2010 Research - Optimized planning of flexible optical networks on EO-NET project (Elastic Optical Networks), E.C. CELTIC
10/2005– 2/2009	Researcher Department of Computer Engineering and Informatics, University of Patras, and Computer Technology Institute, Patra, Greece - Research work on DICONET project (Dynamic Impairment Constraint Networking for Transparent Mesh Optical Networks), E.C. FP7 ○ Optimal and heuristic algorithms for routing and wavelength allocation in optical networks - Research work on Phosphorus project (Lambda User Controlled Infrastructure for European Research) E.C. FP7 ○ Joint optimization of computing and network resources in Grid computing networks - Worked in PENED 2003, GRIDAPP, Pythagoras, Greek General Secretariat for Research and Technology (GSRT) projects

EDUCATION

3 / 2009 *Ph. D.*

Department of Computer Engineering and Informatics, University of Patras, Greece

Ph.D. thesis: "Routing and Efficient Bandwidth Allocation in Optical Networks"

Advisor: Emmanouel (Manos) Varvarigos

10 / 2004 *M.Sc. in Advanced Computing,*

Department of Computing, Imperial College London, U.K.

M.Sc. thesis: "Robust Indexing Techniques for Continuous Moving Objects"

10 / 2002 *Diploma in Electrical and Computer Engineering,*

School of Electrical and Computer Engineering, National Technical University of Athens, Greece. Grade: 8.56/10

FUNDING & PROPOSALS WRITING

Primal Investigator in the following funded projects

- Determined (Designing and Configuring Deterministic Network Domains for Industry 4.0 and Centralized 5G/6G Virtual Functions), 2 years, Hellenic Foundation for Research and Innovation (EΛ.ΙΑ.Ε.Κ.), Greece, host institute: University of Athens, 11/2023 -
- Post-doctoral fellowship (2 years), State Scholarships Foundation (IKY), Greece, "Algorithms for optimization and self-adaptation of Elastic Optical Networks", host institute: National Technical University of Athens, Greece, 3/2017-3/2019
- Post-doctoral fellowship (2 years), Irish Research Council (IRCSET), Ireland, "Hybrid optical interconnects for Exascale computing", host institutes: Trinity College Dublin and IBM Research Ireland, 8/2011– 8/2013

Leading the writing of the following funded projects

- ORCHESTRA (Optical Performance Monitoring Enabling Dynamic Networks using a Holistic Cross-layer, Self-configurable flexible Approach), funded by EC under Horizon 2020, 2016-2018, total project 3M€, group 600K€
- NEPHELE (End-to-end Scalable and Dynamically Reconfigurable Optical Architecture for Application-aware SDN Cloud Datacenters), funded by EC under Horizon 2020, 2016-2018, total project 3M€, group 400K€
- EEONPO: Energy Efficient Optical Network Planning and Operation, funded by GSRT, Greece, total project 1M€, group 300K€, 2016-2017
- ARMONIA, Self-configured and unified access and metro network, funded by GSRT, Greece, total project 1M€, group 250K€, 2019-2021

Participation in the writing of FP7, H2020, and Greek national proposals

- Funded: ALLEGRO, Phosphorus, EO-Net, IDEALIST, Phox-Trot, 5G-phos

Funding of students

- Participated in the writing of successful scholarship proposals of Ph.D. students:
I. Sarzetakis (IKY), P. Papanikolaou (IKY), K. Kondodimas (HFRI), F. Locatteli and A. Mahajan (Marie Currie ITN)
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SKILLS

- Analytical skills, probabilities, statistics, combinatorics
 - Optimization and algorithms
 - Linear and Convex Optimization, Integer and Mixed Integer Programming, greedy heuristics and meta-heuristic algorithms (tools: CPLEX, Gurobi)
 - Machine learning
 - Supervised Learning, Regression and Classification, Logistic Regression, SVM, Neural Networks, in Matlab and Python
 - Programming: Matlab, C, C++, Java, Python
 - FPGA programming: Vivado, VHDL
 - TCP/IP networking
 - Scientific / technical writing and presentations
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PUBLICATIONS AND PATENTS

- 66 articles in peer-reviewed journals, 84 articles in international conferences, 24 invited talks, 6 book chapters, and 10 posters.
 - Google scholar: citations ≥ 4850 , h-index ≥ 35
<http://scholar.google.com/citations?user=-2niNz0AAAAJ&hl=en>
 - Scopus: citations ≥ 3493 , h-index ≥ 27
<https://www.scopus.com/authid/detail.uri?authorId=55928012300>
 - 2 patents (active)
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HONORS - DISTINCTIONS

- Recognized in the Stanford/Elsevier Top 2% Scientists List 2023, 2024, 2025, -
<https://topresearcherslist.com/Home/Search?AuthFull=christodouloupoulos>
- Scholarships/fellowships
 - Postdoctoral scholarship, State Scholarships Foundation (IKY), Greece, 1/2017-1/2019
 - Postdoctoral fellowship, Irish Research Council and IBM Ireland, 8/2011– 8/2013
 - Bursary for M.Sc. in Advanced Computing, Imperial College London, U.K., Engineering & Physical Sciences Research Council (EPSRC) funded, U.K., 2003-2004,
- Invited talks at major conferences
 - Optical Fiber Communications conference (OFC) 2019. “Slotted Optical Datacenter Networks with Sub-Wavelength Resource Allocation”
 - Optical Fiber Communications conference (OFC) 2015. “Evaluating flexibility degrees in optical networks”
- Best paper awards

- IEEE/OSA Journal of Lightwave Technology 2011 Best paper award (awarded in 2014) for “K. Christodoulopoulos, I. Tomkos, E. Varvarigos, Elastic Bandwidth Allocation in Flexible OFDM-based Optical Networks”
- Europar 2012 conference best paper award for “K. Christodoulopoulos, K. Katrinis, M. Ruffini, D. O’Mahony, Topology Configuration in Hybrid EPS/OCS Interconnects”
- E-science 2007 conference best poster for “K. Christodoulopoulos, N. Doulamis, E. Varvarigos, Joint Communication and Computation Task Scheduling in Grids”.
- Associate Editor, IEEE/OSA Journal of Optical Communications&Networking, 2018-2024
- Exemplary Reviewer awards
 - IEEE/OSA Journal of Optical Communications and Networking, 2015, 2016, 2017
 - IEEE Communications Letters, 2013, 2014, 2015
- Conference Committee member
 - ONDM 2019 2020 and 2022, PIMRC 2020
 - OFC 2021-2024 subcommittee N3 (Architectures and software-defined control for metro and core networks)
 - OFC 2024 subcommittee N3 chair
 - ECOC 2025- subcommittee SC 6 (Architecture, modelling and performance of optical networks)
- Reviewer in international journals and conferences
 - Journals: IEEE/OSA Journal of Lightwave Technology, IEEE/OSA Journal of Optical Communications and Networking, IEEE Transactions on Communications, IEEE Communications Letters, Elsevier Computer Networks, Springer Photonic Network Communications
 - Conferences: IEEE Globecom, IEEE ICC, ONDM, OFC.
- Other Distinctions
 - Elsevier Optical Switching and Networking Top Cited Article 2005-2010 award for “K. Christodoulopoulos, E. Varvarigos, K. Vlachos, A new Burst Assembly Scheme Based on the Average Packet Delay and its Performance for TCP Traffic”.

LANGUAGES

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- English
 - Certificate of Proficiency in English, University of Cambridge (Grade: A)
 - Greek (native)
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EXTRACURRICULAR ACTIVITIES

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- Movies
 - Music, Guitar
 - Sports
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FULL LIST OF PUBLICATIONS

Journal Articles

- [J1] P. Soumplis, K. Christodoulopoulos, P. Kokkinos, A. Napoli, M. Hosseini, K. Yiannopoulos, E. Varvarigos, "Enabling extended access aggregation with light-trees and point-to-multipoint coherent transceivers", *Journal of Optical Communications and Networking* 17 (4), 249-261, 2025.
- [J2] F. Locatelli, K. Christodoulopoulos, C. Delezoide, J. M Fàbrega, M Svaluto Moreolo, L. Nadal, A. Mahajan, S. Spadaro, "Feedback-based channel frequency optimization in superchannels", *Journal of Lightwave Technology* 42 (13), 4467-4475, 2024.
- [J3] K. Christodoulopoulos, S. Bidkar, W. Lautenschlaeger, T. Pfeiffer, R. Bonk, "Deterministic passive optical networking", *Journal of Optical Communications and Networking* 16 (2), 180-192, 2024.
- [J4] T. Pfeiffer, P. Dom, S. Bidkar, F. Fredricx, K. Christodoulopoulos, R. Bonk, "PON going beyond FTTH", *Journal of Optical Communications and Networking*, 2022. **Invited**
- [J5] W. Lautenschlaeger, F. Frick, K. Christodoulopoulos, T. Henke, "A Scalable Factory Backbone for Multiple Independent Time-Sensitive Networks", *Elsevier Journal of Systems Architecture*, 2021.
- [J6] A. Mahajan, K. Christodoulopoulos, R. Martínez, R. Muñoz, S. Spadaro, "Impact of Multi-Vendor Transponders Performance on Design Margin in Optical Networks", *IEEE access* 9, 2021.
- [J7] F. Locatelli, K. Christodoulopoulos, M.S. Moreolo, J.M. Fabrega, L. Nadal, S. Spadaro, "Spectral processing techniques for efficient monitoring in optical networks", *Journal of Optical Communications and Networking* 13 (7), 2021.
- [J8] S. Bigo, N. Benzaoui, K. Christodoulopoulos, R. Miller, W. Lautenschlaeger, F. Frick, "Dynamic deterministic digital infrastructure for time-sensitive applications in factory floors", *IEEE Journal of Selected Topics in Quantum Electronics*, 2021. **Invited**
- [J9] A. Mahajan, K. Christodoulopoulos, R. Martínez, R. Muñoz, S. Spadaro, "Quality of transmission estimator retraining for dynamic optimization in optical networks", *IEEE/OSA Journal of Optical Communications and Networking* 13 (4), 2021.
- [J10] K. Tokas, G. Patronas, C. Spatharakis, P. Bakopoulos, A. Kyriakos, G Landi, E. Zahavi, K. Christodoulopoulos, M. Aziz, R. Pitwon, D. Gallico, D. Reisis, E. Varvarigos, H. Avramopoulos "End-to-End Real-Time Demonstration of the Slotted, SDN-Controlled NEPHELE Optical Datacenter Network", *Photonics* 7 (2), 2020.
- [J11] A. Mahajan, K. Christodoulopoulos, R. Martínez, S. Spadaro, R. Muñoz, "Modeling EDFA gain ripple and filter penalties with machine learning for accurate QOT estimation", *IEEE/OSA Journal of Lightwave Technology*, 38 (9), 2616-2629, 2020.
- [J12] F. Locatelli, K. Christodoulopoulos, M. Svaluto Moreolo, J. M. Fabrega, S. Spadaro, "Machine Learning-Based in-band OSNR Estimation from Optical Spectra", *IEEE Photonic Technology Letters (PTL)*, 2019.

- [J13] K. Christodoulopoulos, C. Delezoide, N. Sambo, A. Kretsis, I. Sartzetakis, A. Sgambelluri, N. Argyris, G. Kanakis, P. Giardina, G. Bernini, D. Roccato, A. Percelsi, R. Morro, H. Avramopoulos, P. Castoldi, P. Layec, S. Bigo, "Toward efficient, reliable, and autonomous optical networks: the ORCHESTRA solution", *IEEE/OSA Journal of Optical Communications and Networking* 2019. **Invited**
- [J14] N. Sambo, K. Christodoulopoulos, N. Argyris, P. Giardina, C. Delezoide, D. Roccato, A. Percelsi, R. Morro, A. Sgambelluri, A. Kretsis, G. Kanakis, G. Bernini, E. Varvarigos, P. Castoldi, "Field Trial: Demonstrating Automatic Reconfiguration of Optical Networks based on Finite State Machine", *IEEE/OSA, Journal of Lightwave Technology*, 2019. **Invited**
- [J15] C. Delezoide, K. Christodoulopoulos, A. Kretsis, N. Argyris, G. Kanakis, A. Sgambelluri, N. Sambo, P. Giardina, G. Bernini, D. Roccato, A. Percelsi, R. Morro, H. Avramopoulos, E. Varvarigos, P. Castoldi, P. Layec, S. Bigo, "Marginless Operation of Optical Networks", *IEEE/OSA, Journal of Lightwave Technology*, 2019. **Invited**
- [J16] I. Sartzetakis, K. Christodoulopoulos, E. Varvarigos, "Accurate quality of transmission estimation with machine learning", *IEEE/OSA, Journal of Optical Communications and Networking*, 2019.
- [J17] N. Sambo, K. Christodoulopoulos, N. Argyris, P. Giardina, C. Delezoide, A. Sgambelluri, A. Kretsis, G. Kanakis, F. Fresi, G. Bernini, H. Avramopoulos, E. Varvarigos, P. Castoldi, "Experimental Demonstration of a Fully Disaggregated and Automated White Box Comprised of Different Types of Transponders and Monitors", *IEEE/OSA Journal of Lightwave Technology*, 2019.
- [J18] A. Siokis, K. Christodoulopoulos, E. Varvarigos, "Layout model for optical interconnects based on λ -routing grids and topology embeddings", *IEEE/OSA, Journal of Optical Communications and Networking*, 2018.
- [J19] I. Sartzetakis, N. Sambo, K. Christodoulopoulos, P. Castoldi, E. Varvarigos, "Exploiting spectrum sharing for soft failure recovery", *IEEE/OSA, Journal of Optical Communications and Networking*, 2018.
- [J20] G. Landi, M. Capitani, A. Kretsis, K. Kontodimas, P. Kokkinos, D. Gallico, M. Biancani, K. Christodoulopoulos, E. Varvarigos, "Inter-domain optimization and orchestration for optical datacenter networks", *IEEE/OSA, Journal of Optical Communications and Networking*, 2018.
- [J21] I. Gravalos, P. Makris, K. Christodoulopoulos, E. Varvarigos, "Efficient Network Planning for Internet of Things with QoS Constraints", *IEEE Journal of Internet of Things*, 5 (5), 2018.
- [J22] P. Bakopoulos, K. Christodoulopoulos, G. Landi, M. Aziz, E. Zahavi, D. Gallico, R. Pitwon, K. Tokas, I. Patronas, M. Capitani, C. Spatharakis, K. Yiannopoulos, K. Wang, K. Kontodimas, I. Lazarou, P. Wieder, D. Reisis, E. Varvarigos, M. Biancani, H. Avramopoulos, "NEPHELE: An End-to-End Scalable and Dynamically Reconfigurable Optical Architecture for Application-Aware SDN Cloud Data Centers", *IEEE Communications Magazine*, 2018.
- [J23] P. Papanikolaou, K. Christodoulopoulos, E. Varvarigos, "Optimization Techniques for Incremental Planning of Multilayer Elastic Optical Networks", *IEEE/OSA Journal of Optical Communications and Networking*, 2018.

- [J24] I. Sartzetakis, K. Christodoulopoulos, E. Varvarigos, "Cross-Layer Adaptive Elastic Optical Networks", IEEE/OSA Journal of Optical Communications and Networking (JOCN), 2018. **Invited**
- [J25] P. Soumplis, K. Christodoulopoulos, M. Quagliotti, A. Pagano, E. Varvarigos, "Multi-Period Planning With Actual Physical and Traffic Conditions", IEEE/OSA Journal of Optical Communications and Networking (JOCN), 2018. **Invited**
- [J26] K. Christodoulopoulos, K. Kontodimas, A. Siokis, K. Yiannopoulos, E. Varvarigos, "Efficient bandwidth allocation in the NEPHELE optical/electrical datacenter interconnect", IEEE/OSA Journal of Optical Communications and Networking (JOCN), 2017.
- [J27] P. Soumplis, K. Christodoulopoulos, M. Quagliotti, A. Pagano, E. Varvarigos, "Network Planning with Actual Margins", IEEE/OSA Journal of Lightwave Technology (JLT), 2017.
- [J28] A. Siokis, K. Christodoulopoulos, N. Pleros, E. Varvarigos, "Electro-optic switches based on space switching of multiplexed WDM signals: Blocking vs non-blocking design trade-offs", Elsevier Optical Switching and Networking 25, pp. 40-56, 2017.
- [J29] P. Maniotis, N. Terzenidis, A. Siokis, K. Christodoulopoulos, E. Varvarigos, M. Immonen, H. J. Yan, L. X. Zhu, K. Hasharoni, R. Pitwon, K. Wang, N. Pleros, "Application-oriented On-board Optical Technologies for HPCs", IEEE/OSA Journal of Lightwave Technology (JLT), 2017.
- [J30] P. Papanikolaou, K. Christodoulopoulos, E. Varvarigos, "Joint multi-layer survivability techniques for IP-over-elastic-optical-networks", IEEE/OSA Journal of Optical Communications and Networking (JOCN), 9 (1), 2017.
- [J31] A. Siokis, K. Christodoulopoulos, E. Varvarigos, "Multipoint Architectures for On-Board Optical Interconnects", IEEE/OSA Journal of Optical Communications and Networking (JOCN), Vol. 8 is. 11, 2016.
- [J32] I. Sartzetakis, K. Christodoulopoulos, C. Tsekrekos, D. Syvridis, E. Varvarigos, "Quality of transmission estimation in WDM and elastic optical networks accounting for space-spectrum dependencies", IEEE/OSA Journal of Optical Communications and Networking (JOCN), Vol. 8, is. 9, 2016.
- [J33] M.S. Moreolo, J.M. Fabrega, L. Martín, K. Christodoulopoulos, E. Varvarigos, J. P. F. Palacios, "Flexgrid Technologies Enabling BRAS Centralization in MANs", IEEE/OSA Journal of Optical Communications and Networking (JOCN), Vol. 8, is. 7, 2016.
- [J34] V. Gkamas, K. Christodoulopoulos, E. Varvarigos, "Energy-minimized design of IP over flexible optical networks", Wiley International Journal of Communication Systems, 2015.
- [J35] V. Gkamas, K. Christodoulopoulos, E. Varvarigos, "A joint multi-layer planning algorithm for IP over flexible optical networks", IEEE/OSA Journal of Lightwave Technology (JLT), 2015.
- [J36] K. Christodoulopoulos, C. Papageorgiou, E. Varvarigos, "Minimizing Expected Transmissions Multicast in Wireless Multihop Networks", Springer International Journal of Wireless Information Networks: Vol. 22, Is. 3, pp. 205-219, 2015.
- [J37] P. Papanikolaou, P. Soumplis, K. Manousakis, G. Papadimitriou, G. Ellinas, K. Christodoulopoulos, E. Varvarigos, "Minimizing Energy and Cost in fixed-grid and flex-grid networks", IEEE/OSA Journal of Optical Communications and Networking (JOCN), 2015.

- [J38] K. Christodoulopoulos, D. Lugones, K. Katrinis, M. Rufinni, D. O'Mahony, "Performance Evaluation of a Hybrid Optical/Electrical Interconnect", *IEEE/OSA Journal of Optical Communications and Networking (JOCN)*, Vol. 7, Is. 3, 2015.
- [J39] P. Soumplis, K. Christodoulopoulos, E. Varvarigos, "Dynamic Connection Establishment and Network Re-optimization in Flexible Optical Networks", *Springer Photonic Network Communications (PNC)*, 2015. **Invited**
- [J40] A. Kretsis, P. Kokkinos, K. Christodoulopoulos, T. Varvarigou, E. Varvarigos, "Mantis: Cloud-based optical network planning and operation tool", *Elsevier Compute Networks*, Vol. 77, pp. 153-168, 2015.
- [J41] E. Varvarigos, K. Christodoulopoulos, "Algorithmic Aspects in Planning Fixed and Flexible Optical Networks With Emphasis on Linear Optimization and Heuristic Techniques", *IEEE/OSA Journal Lightwave Technology (JLT)*, Vol 32, Is. 4, pp. 681-693, 2014. **Invited**
- [J42] A Kretsis, K Christodoulopoulos, P Kokkinos, E Varvarigos, "Planning and operating flexible optical networks: Algorithmic issues and tools", *IEEE Communications Magazine*, Vol. 52, Is. 1, pp. 61-69, 2014.
- [J43] K. Christodoulopoulos, P. Soumplis, E. Varvarigos, "Planning flexible optical networks under physical layer constraints", *IEEE/OSA Journal of Optical Communications and Networking (JOCN)*, Vol. 5, Is. 11, pp. 1296-1312, 2013.
- [J44] K. Christodoulopoulos, K. Katrinis, M. Ruffini, D. O'Mahony, "Tailoring the Network to the Problem: Topology Configuration in Hybrid EPS/OCS Interconnects", *Wiley Interscience Concurrency and Computation: Practice and Experience*, Vol. 25, Is. 17, pp. 2412-2432, 2013. **Invited**
- [J45] K. Christodoulopoulos, I. Tomkos, E. Varvarigos, "Time-Varying Spectrum Allocation Policies in Flexible Optical Networks", *IEEE Journal on Selected Areas in Communication (JSAC)*, Vol 31, Is. 1, pp. 13-25, 2013.
- [J46] E. Palkopoulou, M. Angelou, D. Klonidis, K. Christodoulopoulos, A. Klekamp, F. Buchali, E. Varvarigos, I. Tomkos, "Quantifying spectrum, cost, and energy efficiency in fixed-grid and flex-grid networks", *IEEE/OSA Journal of Optical Communications and Networking (JOCN)*, Vol. 4, Is. 11, 2012. **Invited**
- [J47] K. Christodoulopoulos, I. Tomkos, E. Varvarigos, "Elastic Bandwidth Allocation in Flexible OFDM-based Optical Networks", *IEEE/OSA Journal of Lightwave Technology (JLT)*, Vol 29, Is. 9, pp. 1354-1366, 2011. **Best paper award**
- [J48] K. Christodoulopoulos, K. Manousakis, E. Varvarigos, "Reach Adapting Algorithms for Mixed Line Rate WDM Transport Networks", *IEEE/OSA Journal of Lightwave Technology (JLT)*, Vol 29, Is. 21, pp. 3350-3363, 2011.
- [J49] K. Christodoulopoulos, P. Kokkinos, E. Varvarigos, "Indirect and Direct Multicost Algorithms for Online Impairment-Aware RWA", *IEEE/ACM Transactions on Networking (TON)*, Vol. 19, Is. 6, pp. 1759-1772, 2011.
- [J50] P. Kokkinos, K. Christodoulopoulos, E. Varvarigos, "Efficient Data Consolidation in Grid Networks", *Elsevier Future Generation Computer Systems (FGCS)*, Vol. 27, Is. 2, 2011.

- [J51] K. Christodoulopoulos, P. Kokkinos, K. Manousakis, E. Varvarigos, "Impairment Aware RWA in optical networks: over-provisioning or cross optimization?", *Journal of Networks*, Special Issue on All-Optical Routing, Vol. 5, No. 11, 2010.
- [J52] K. Christodoulopoulos, K. Manousakis, E. Varvarigos, "Offline Routing and Wavelength Assignment in Transparent WDM Networks", *IEEE/ACM Transactions on Networking (TON)*, Vol. 18, Is. 5, 2010.
- [J53] K. Manousakis, P. Kokkinos, K. Christodoulopoulos, E. Varvarigos, "Joint Online Routing, Wavelength Assignment and Regenerator Allocation in Translucent Optical Networks", *IEEE/OSA Journal of Lightwave Technology (JLT)*, Vol. 28, is. 8, pp. 1152-1163, 2010.
- [J54] T. Stevens, M. De Leenheer, C. Develder, B. Dhoedt, K. Christodoulopoulos, P. Kokkinos, E. Varvarigos, "Multi-Cost Job Routing and Scheduling in Grid Networks", *Elsevier Future Generation Computer Systems (FGCS)*, Vol. 25, Is. 8, pp. 912-925, 2009.
- [J55] K. Manousakis, K. Christodoulopoulos, E. Kamitsas, I. Tomkos, E. Varvarigos, "Offline Impairment-Aware Routing and Wavelength Assignment Algorithms in Translucent WDM Optical Networks", *IEEE/OSA Journal of Lightwave Technology (JLT)*, Vol. 27, Is. 12, pp. 1866 – 1877, 2009.
- [J56] K. Christodoulopoulos, K. Manousakis, E. Varvarigos, M. Angelou, "Considering Physical Layer Impairments in Offline RWA", *IEEE Network Magazine*, Vol. 23, Is. 3, pp. 26 – 33, 2009.
- [J57] K. Christodoulopoulos, V. Sourlas, I. Mpakolas, E. Varvarigos, "A Comparison of Centralized and Distributed Meta-Scheduling Architectures for Computation and Communication Tasks in Grid Networks", *Elsevier Computer Communications*, Vol. 32, Is. 7-10, pp. 1172-1184, 2009.
- [J58] E. Varvarigos, V. Sourlas, K. Christodoulopoulos, "Routing and Scheduling Connections in Networks that Support Advance Reservations", *Elsevier Computer Networks*, Vol. 52, no. 15, pp. 2988-3006, 2008.
- [J59] K. Christodoulopoulos, E. Varvarigos, K. Vlachos, "A new Burst Assembly Scheme based on the Average Packet Delay and its Performance for TCP Traffic", *Elsevier Journal of Optical Switching and Networking*, Vol. 4, no. 3-4, pp. 200-212, 2007.
- [J60] R. V. Caenegem, D. Colle, M. Pickavet, P. Demeester, K. Christodoulopoulos, K. Vlachos, E. Varvarigos, L. Stampoulidis, D. Roccato, R. Vilar, "The Design of an All-Optical Packet-Switching Network", *IEEE Communications Magazine*, Vol. 45, no. 11, pp. 52 - 61, 2007.
- [J61] K. Christodoulopoulos, V. Gkamas, E. Varvarigos, "Statistical Analysis and Modeling of Jobs in a Grid Environment", *Springer Journal of Grid Computing*, Vol. 6, pp. 77-101, 2007.
- [J62] K. Vlachos, E. Van Breusegem, K. Christodoulopoulos, D. Colle, K. Ramantas, P. Demeester, "Constrained and Unconstrained Overspill Routing in Optical Networks: A Detailed Performance Evaluation", *Springer Photonic Network Communications (PNC)*, Vol. 13, No. 3, pp. 227-240, 2007.
- [J63] J. Aracil, N. Akar, S. Bjornstad, M. Casoni, K. Christodoulopoulos, D. Careglio, J. Fdez-Palacios, C. Gauger, O. González de Dios, G. Hu, E. Karasan, M. Klinkowski, D. Morató, R. Nejabati, H. Overby, C. Raffaelli, D. Simeonidou, N. Stol, G. Tosi-Beleffi, K. Vlachos, "Research in Optical Burst Switching within the e-Photon/ONe Network of Excellence", *Elsevier Journal of Optical Switching and Networking*, Vol. 4, Is. 1, pp. 1-19, 2007.

- [J64] K. Manousakis, V. Sourlas, K. Christodoulopoulos, E. A. Varvarigos, K. Vlachos, "A Bandwidth Monitoring Mechanism Enhancing SNMP to Record Timed Resource Reservations", Springer Journal of Network and Systems Management, Vol. 14, No. 4, pp. 583-597, 2006.
 - [J65] E. Kehayas, K. Vyrsoinos, L. Stampoulidis, K. Christodoulopoulos, K. Vlachos, H. Avramopoulos "ARTEMIS: A 40 Gb/s All-Optical Self-Routing Node and Network Architecture employing Asynchronous Bit and Packet-Level Optical Signal Processing", IEEE/OSA Journal of Lightwave Technology (JLT), Vol. 24, no.8, pp. 2967-2977, 2006.
 - [J66] K. Christodoulopoulos, K. Vlachos, E. Varvarigos, L. Stampoulidis, E. Kehayas, "EBRP: A Hybrid Signaling Protocol for Efficient Burst-Level Reservations and Quality-of-Service Differentiation in Optical Burst Switching Networks", Journal of Optical Networking, OSA, Vol. 5, Is. 3, 2006.
-

Book Chapters

- [B1] A. Siokis, K. Christodoulopoulos, E. Varvarigos, "The role of optical interconnects in the design of data center architectures", in "Optical Interconnects for Data Centers", Elsevier, pp 375-393, 2017.
 - [B2] L. Velasco, M. Ruiz, K. Christodoulopoulos, E. Varvarigos, M. Zolkiewicz, M. Pioro, "Routing and Spectrum Allocation", in Elastic Optical Networks, Springer, pp. 55-81, 2016.
 - [B3] A. Stavdas, C. Matrakidis, M. Gunkel, A. Asensio, L. Velasco, E. Varvarigos, K. Christodoulopoulos "Taking Advantage of Elastic Optical Networks", in "Elastic Optical Networks", Springer, pp. 31-54, 2016.
 - [B4] K. Christodoulopoulos, E. Varvarigos, "Considering linear and non-linear impairments in offline-design", in "Cross-layer Design in Optical Networks", Springer, 2013, ISBN 978-1-4614-5671-1.
 - [B5] K. Christodoulopoulos, E. Varvarigos, "Online Impairment Aware Routing and Wavelength Assignment in WDM Optical Networks", in "Horizons in Computer Science Research. Volume 6", Nova publishers, 2011, ISBN: 978-1-61470-455-3.
 - [B6] P. Kokkinos, K. Christodoulopoulos, N. Doulamis, E. Varvarigos, "Quality of Service Scheduling of Computation and Communication Resources in Grid Networks", Chapter 3, in "Grid Computing Research Progress", Nova publishers, 2008. ISBN: 978-1-60456-404-4.
-

Conference publications

- [C1] I. Gravalos K. Christodoulopoulos, "Energy Efficient PON Traffic Coordination", IEEE International Conference on Communications (ICC), 2025.
- [C2] P. Soumplis, K. Christodoulopoulos, K. Yiannopoulos, E. Varvarigos, "Model Predictive Control Scheduling for Extended Access Metro P2MP Optical Networks", International Conference on Transparent Optical Networks (ICTON), 2025.

- [C3] A. Selentis-Boulntadakis, K. Christodoulopoulos, G.T. Kanellos, "Relayed vs. Switched QKD: A Comparison in Non-Uniform Ring Networks", International Conference on Optical Network Design and Modeling (ONDM), 2025.
- [C4] P. Soumplis, K. Christodoulopoulos, K. Yiannopoulos, E. Varvarigos, "QoS-aware Resource Allocation in Point to Multipoint (P2MP) Metro Aggregation Networks", Optical Fiber Communication Conference (OFC), Th3D, 2025.
- [C5] K. Christodoulopoulos, P. Soumplis, P. Kokkinos, A. Napoli, M. Hosseini, K. Yiannopoulos, E. Varvarigos, "Resource Allocation with Service Level Constraints in Point-to-Multipoint Metro-Core Networks", Optical Fiber Communication Conference (OFC), Th3D, 2025.
- [C6] N. Makris, K. Tsimvrakidis, A. Papageorgopoulos, P. Konteli, Y. Gautier, M. Terenziani, E. Daudin, D. Ntoulas, T. Fragkioudakis, I. Meletios, M. Mosca, D. Hobbs, T. Rosati, I. Papastamatiou, O. Prnjat, K. Koumantaros, D. Mitropoulos, JR. Morax, B. Huttner, K. Christodoulopoulos, G. Kanellos, D. Syvridis, "Field demonstration of a fully managed, L1 encrypted 3-node network with hybrid relayed-QKD and centralized symmetric classical key management", European Conference on Optical Communication (ECOC), 2024.
- [C7] P. Soumplis, K. Christodoulopoulos, P. Kokkinos, A. Napoli, M. Hosseini, M. Ouagliotti, E. Riccardi, A. Pagano, K. Yiannopoulos, E. Varvarigos, "Techno-economic and feasibility study of point-to-multipoint communications in the metro-core", International Symposium on Communication Systems, Networks and Digital Signal Processing (CSNDSP), 2024
- [C8] P. Soumplis, K. Yiannopoulos, K. Christodoulopoulos, E. Varvarigos, "Optimizing Light-Tree and Edge Resource Placement for Diverse Latency Needs", International Conference on Transparent Optical Networks (ICTON), 2024.
- [C9] K. Yiannopoulos, P. Soumplis, K. Christodoulopoulos, P. Kokkinos, A. Napoli, M. Hosseini, E. Varvarigos, "Enabling extended access with light-trees and point-to-multipoint coherent transceivers", International Conference on Optical Network Design and Modeling (ONDM), 2024.
- [C10] N. Makris, A. Papageorgopoulos, P. Konteli, I. Tsoni, K. Tsimvrakidis, I. Papastamatiou, K. Christodoulopoulos, G.T. Kanellos, D. Syvridis, "Relayed-QKD and switched-QKD networks performance comparison considering physical layer QKD limitations", Optical Fiber Communication Conference (OFC), M2J. 3, 2024
- [C11] G. T. Kanellos, K. Christodoulopoulos, I. Tsoni, A. Papageorgopoulos, N. Makris, P. Konteli, D. Syvridis, "Advanced key management in switched QKD networks with non-optimized QKD links", Quantum Computing, Communication, and Simulation IV, 2024
- [C12] K. Christodoulopoulos, S. Bidkar, T. Pfeiffer, R. Bonk, "Deterministically scheduled PON for industrial applications", Optical Fiber Communication Conference (OFC), Tu3F. 5, 2023
- [C13] S. Bidkar, K. Christodoulopoulos, T. Pfeiffer, R. Bonk, "Evaluating bandwidth efficiency and latency of scheduling schemes for 5g fronthaul over TDM-PON", European Conference and Exhibition on Optical Communication (ECOC), Mo3C. 2022.
- [C14] K. Christodoulopoulos, S. Bidkar, W. Lautenschlaeger, T. Pfeiffer, R. Bonk, "Demonstration of Industrial-grade Passive Optical Network", Optical Fiber Communication Conference, Tu2G, 2022.

- [C15] A. Mahajan, K. Christodoulopoulos, R. Martínez, R. Muñoz, S. Spadaro, "Adaptive and iterative QoT estimator retraining for launch power optimization", Optical Fiber Communications Conference and Exhibition (OFC), 2021
- [C16] F. Locatelli, K. Christodoulopoulos, J.M. Fàbrega, M.S. Moreolo, L. Nadal, S. Spadaro, "Filter Features Extraction from Optical Spectra", European Conference on Optical Communications (ECOC), 2020
- [C17] A. Mahajan, K. Christodoulopoulos, R. Martínez, S. Spadaro, R. Muñoz, "Modelling Multi-Vendor Transponders Performance and Optimizing Launch Power, European Conference on Optical Communications (ECOC), 2020
- [C18] A. Mahajan, K. Christodoulopoulos, R. Martinez, S. Spadaro, R. Munoz, "Improving QoT Estimation Accuracy with DGE Monitoring using Machine Learning", International Conference on Optical Network Design and Modeling (ONDM), 2020
- [C19] F. Locatelli, K. Christodoulopoulos, J.M. Fàbrega, M.S. Moreolo, L. Nadal, S. Spadaro, "Experimental Demonstration of a Machine Learning-Based in-band OSNR Estimator from Optical Spectra", International Conference on Optical Network Design and Modeling (ONDM), 2020
- [C20] K. Christodoulopoulos, W. Lautenschlaeger, F. Frick, N. Benzaoui, T. Henke, U. Gebhard, L. Dembeck, A. Lechler, Y. Pointurier, S. Bigo, "Enabling the Scalability of Industrial Networks by Independent Scheduling Domains", Optical Fiber Communications Conference (OFC), 2020
- [C21] A. Mahajan, K. Christodoulopoulos, R. Martinez, S. Spadaro, R. Munoz, "Modeling Filtering Penalties in ROADM-based Networks with Machine Learning for QoT Estimation", Optical Fiber Communications Conference (OFC), 2020
- [C22] A. Mahajan K. Christodoulopoulos, R. Martinez, S. Spadaro, R. Munoz, "Machine Learning Assisted EDFA Gain Ripple Modelling for Accurate QoT Estimation", European Conference on Optical Communication (ECOC), 2019.
- [C23] K. Kontodimas, K. Christodoulopoulos, E. Varvarigos, "Simplifying Optical DCN Fabrics with Blocking Space Switching and Wavelength-Constrained WDM", International Conference on Optical Network Design and Modeling (ONDM), 2019.
- [C24] C. Delezoide, K. Christodoulopoulos, A. Kretsis, N. Argyris, G. Kanakist, A. Sgambelluri, N. Sambo, P. Giardina, G. Bernini, D. Roccato, A. Percelsi, R. Morro, H. Avramopoulos, E. Varvarigos, P. Castoldi, P. Layec, S. Bigo, "Field trial of marginless operations of an optical network facing ageing and performance fluctuations", European Conference on Optical Communication (ECOC), 2018.
- [C25] K. Tokas, C. Spatharakis, I. Patronas, P. Bakopoulos, G. Landi, K. Christodoulopoulos, M. Capitani, A. Kyriakos, M. Aziz, R. Pitwon, D. Gallico, D. Reisis, E. Varvarigos, E. Zahavi, H. Avramopoulos, "Real time demonstration of an end-to-end optical datacenter network with dynamic bandwidth allocation", European Conference on Optical Communication (ECOC), 2018.
- [C26] I. Sartzetakis, K. Christodoulopoulos, E. Varvarigos, "Formulating QoT estimation with machine learning", European Conference on Optical Communication (ECOC), 2018.
- [C27] N. Sambo, K. Christodoulopoulos, N. Argyris, P. Giardina, C. Delezoide, D. Roccato, A. Percelsi, R. Morro, A. Sgambelluri, G. Kanakis, G. Bernini, P. Castoldi, "Dynamic (re) configuration of

- optical networks based on monitoring information: field trial", Photonic Networks and Devices Conference, 2018.
- [C28] K. Kontodimas, K. Christodoulopoulos, E. Zahavi, E. Varvarigos, "Resource allocation in slotted optical data center networks", International Conference on Optical Network Design and Modeling (ONDM), 2018.
 - [C29] I. Patronas, N. Gkatzios, V. Kitsakis, D. Reisis, K. Christodoulopoulos, E. Varvarigos, "Scheduler Accelerator for TDMA Data Centers", Parallel, Distributed and Network-based Processing Conference (PDP), 2018.
 - [C30] N. Sambo, K. Christodoulopoulos, N. Argyris, P. Giardina, C. Delezoide, A. Sgambelluri, A. Kretsis, G. Kanakis, F. Fresi, G. Bernini, H. Avramopoulos, E. Varvarigos, P. Castoldi, "Experimental demonstration of fully disaggregated white box including different types of transponders and monitors, controlled by NETCONF and YANG", Optical Fiber Communication Conference (OFC), 2018.
 - [C31] K. Christodoulopoulos, N. Sambo, N. Argyris, P. Giardina, G. Kanakis, A. Kretsis, F. Fresi, A. Sgambelluri, G. Bernini, C. Delezoide, F. Cugini, H. Avramopoulos, E. Varvarigos, "Observe-Decide-Act: Experimental Demonstration of a Self-Healing Network", Optical Fiber Communication Conference (OFC), 2018.
 - [C32] G. Landi, M. Capitani, A. Kretsis, P. Kokkinos, K. Christodoulopoulos, E. Varvarigos "Joint Intra-and Inter-Datacenter Network Optimization and Orchestration", Optical Fiber Communication Conference (OFC), 2018.
 - [C33] P. Bakopoulos, K. Tokas, C. Spatharakis, I. Patronas, G. Landi, K. Christodoulopoulos, M. Capitani, A. Kyriakos, M. Aziz, D. Reisis, E. Varvarigos, E. Zahavi, H. Avramopoulos, "Optical datacenter network employing slotted (TDMA) operation for dynamic resource allocation", Optical Interconnects, 2018.
 - [C34] N. Sambo, P. Giardina, I. Sartzetakis, A. Sgambelluri, F. Fresi, M. Dallaglio, G. Meloni, G. Bernini, K. Christodoulopoulos, P. Castoldi, E. Varvarigos, "Experimental demonstration of network automation based on QoT estimation and monitoring in both single-and multidomains", European Conference and Exhibition on Optical Communications (ECOC), 2017.
 - [C35] I. Sartzetakis, K. Christodoulopoulos, E. Varvarigos, "On reducing optical monitoring uncertainties and localizing soft failures", IEEE International Conference on Communications (ICC), 2017.
 - [C36] P. Papanikolaou, K. Christodoulopoulos, E. Varvarigos, "Incremental planning of multi-layer elastic optical networks", International Conference Optical Network Design and Modeling (ONDM), 2017.
 - [C37] G. Landi, M. Capitani, K. Christodoulopoulos, D. Gallico, M. Biancani, M. Aziz, "An Application-Aware SDN Controller for Hybrid Optical-Electrical DC Networks", ICN 2017
 - [C38] I. Sartzetakis, K. Christodoulopoulos, E. Varvarigos, "QoT aware adaptive elastic optical networks", Optical Fiber Communication Conference (OFC), 2017.
 - [C39] G Landi, I Patronas, K Kontodimas, M Aziz, K Christodoulopoulos, A. Kyriakos, M. Capitani, A. F. Hamedani, D. Reisis, E. Varvarigos, P. Bakopoulos, H. Avramopoulos, "SDN control

- framework with dynamic resource assignment for slotted optical datacenter networks", Optical Fiber Communications Conference (OFC), 2017.
- [C40] P. Soumplis, K. Christodoulopoulos, M. Quagliotti, A. Pagano, E. Varvarigos, "Actual margins algorithm for multi-period planning", Optical Fiber Communication Conference (OFC), 2017.
 - [C41] M. Aziz, H.A. Fazely, G. Landi, D. Gallico, K. Christodoulopoulos, P. Wieder, "SDN-enabled application-aware networking for data center networks", IEEE International Conference on Electronics, Circuits and Systems (ICECS), 2016.
 - [C42] K. Christodoulopoulos, K. Kontodimas, A. Siokis, K. Yiannopoulos, E. Varvarigos, "Collisions free scheduling in the NEPHELE hybrid electrical/optical datacenter interconnect", IEEE International Conference on Electronics, Circuits and Systems (ICECS), 2016.
 - [C43] I. Gravalos, P. Makris, K. Christodoulopoulos, E. Varvarigos, "Efficient Gateways Placement for Internet of Things with QoS Constraints", IEEE Global Communications Conference (GLOBECOM), 2016.
 - [C44] P. Papanikolaou, K. Christodoulopoulos, E. Varvarigos, "Joint Multilayer Planning of Survivable Elastic Optical Networks", Optical Fiber Communication Conference (OFC), 2016.
 - [C45] K. Christodoulopoulos, N. Sambo, E. Varvarigos, "Exploiting Network Kriging for Fault Localization", Optical Fiber Communication Conference (OFC), W1B. 5, 2016
 - [C46] P. Papanikolaou, K. Christodoulopoulos, E. Varvarigos, "Joint Multilayer Planning of Survivable Elastic Optical Networks", Optical Fiber Communication Conference (OFC), 2016.
 - [C47] I. Sartzetakis, K. Christodoulopoulos, C. Tsekrekos, D. Syvridis, E. Varvarigos, "Estimating QoT of Unestablished Lightpaths", Optical Fiber Communication Conference (OFC), Tu3F. 2, 2016
 - [C48] A. Di Giglio, A. Pagano, K. Christodoulopoulos, P. Kokkinos, N. Argyris, C. Spatharakis, S. Dris, H. Avramopoulos, J-C. Antona, C. Delezoide, P. Jenneve, J. Pesic, Y. Pointurier, P. Castoldi, N. Sambo, G. Bernini, G. Carrozzo, E. Varvarigos, "Cross-layer, dynamic network orchestration, leveraging software-defined optical performance monitors", AEIT Italian Conference on Photonics Technologies (Fotonica), 2015
 - [C49] P. Papanikolaou, K. Christodoulopoulos, E. Varvarigos, "Multilayer flex-grid network planning", International Conference on Optical Network Design and Modeling, (ONDM), 2015.
 - [C50] J.M. Fabrega, M. Moreolo, J.J. Vilchez, K. Christodoulopoulos, E. Varvarigos, J.P. Fernandez-Palacios, "Experimental validation of MTU-BRAS connectivity with DMT transmission and coherent detection in flexgrid metro networks using sliceable transceivers", Optical Fiber Communication conference (OFC), 2015.
 - [C51] S. Markou, A. Siokis, P. Maniotis, K. Christodoulopoulos, E. Varvarigos, N. Pleros, "Performance analysis and layout design of optical blades for HPCs using the OptoBoard-Sim simulator", IEEE Optical Interconnects (OI), 2015.
 - [C52] P. Soumplis, K. Christodoulopoulos, E. Varvarigos, "Dynamic connection establishment and network re-optimization in flexible optical networks", International Conference on Optical Network Design and Modeling (ONDM), 2014.
 - [C53] P. Soumplis, P. Papanikolaou, K. Christodoulopoulos, G. Papadimitriou, E. Varvarigos, "Energy minimization design of fixed-and flex-grid optical networks", Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), 2014.

- [C54] K. Yiannopoulos, E. Varvarigos, V. Katopodis, K. Christodoulopoulos, I. Lazarou, P. Bakopoulos, H. Avramopoulos, D. Klonidis, I. Tomkos, P. Dimos, G. Heliotis, "Coverage capabilities of a multi-wavelength passive optical network architecture", Computer Aided Modeling and Design of Communication Links and Networks (CAMAD), 2014.
- [C55] A. Siokis, K. Christodoulopoulos, E. Varvarigos, "Laying out interconnects on optical printed circuit boards", ACM/IEEE symposium on Architectures for networking and communications systems (ANCS), 2014.
- [C56] M. S. Moreolo, J.M. Fabrega, F.J. Vilchez, K. Christodoulopoulos, E. Varvarigos, V. López, J.P. Fernández-Palacios, "Assessment of Flexgrid Technologies in the MAN for Centralized BRAS Architecture Using S-BVT", European Conference on Optical Communication (ECOC), 2014
- [C57] C. Papageorgiou, K. Christodoulopoulos, N. Doulamis, E. Varvarigos, "On Least Expected Transmissions multicasting in wireless networks", International Conference on Computing, Networking and Communications (ICNC), 2014
- [C58] D. Lugones, K. Christodoulopoulos, K. Katrinis, M. Ruffini, D. O'Mahony, M. Collier, "Accelerating communication-intensive parallel workloads using commodity optical switches and a software-configurable control stack", Europar, 2013.
- [C59] E. Palkopoulou, I. Stiakogiannakis, D. Klonidis, K. Christodoulopoulos, E. Varvarigos, O. Gerstel, I. Tomkos, "Dynamic cooperative spectrum sharing in elastic networks", Optical Fiber Communication Conference (OFC), 2013.
- [C60] K. Christodoulopoulos, P. Soumplis, E. Varvarigos, "Trading off transponders for spectrum in flexgrid networks", Optical Fiber Communication Conference (OFC), 2013
- [C61] K. Christodoulopoulos, M. Ruffini, D. O'Mahony, K. Katrinis, "Topology Configuration in Hybrid EPS/OCS Interconnects", EuroPar 2012. **Best Paper Award**
- [C62] K. Christodoulopoulos, E. Varvarigos, "Routing and Spectrum Allocation Policies for Time-Varying Traffic in Flexible Optical Networks", International Conference on Optical Networking Design and Modeling (ONDM), 2012.
- [C63] M. Angelou, K. Christodoulopoulos, D. Klonidis, A. Klekamp, F. Buchali, E. Varvarigos, I. Tomkos, "Spectrum, Cost and Energy Efficiency in Fixed-Grid and Flex-Grid Networks", Optical Fiber Communications Conference (OFC) 2012.
- [C64] K. Christodoulopoulos, I. Tomkos, E. Varvarigos, "Dynamic Bandwidth Allocation in Flexible OFDM-based Networks", Optical Fiber Communications Conference (OFC), 2011.
- [C65] K. Christodoulopoulos, K. Manousakis, E. Varvarigos, "Adapting the Transmission Reach in Mixed Line Rates WDM Transport Networks", International Conference on Optical Network Design and Modeling, (ONDM), 2011.
- [C66] K. Christodoulopoulos, I. Tomkos, E. Varvarigos, "Routing and Spectrum Allocation in OFDM-Based Optical Networks with Elastic Bandwidth Allocation", IEEE Global Telecommunications Conference (GLOBECOM) 2010.
- [C67] K. Christodoulopoulos, I. Tomkos, E. Varvarigos, "Spectrally/Bitrate Flexible Optical Network Planning", European Conference on Optical Communication (ECOC) 2010.
- [C68] M. De Groote, K. Manousakis, K. Christodoulopoulos, P. Kokkinos, D. Colle, M. Pickavet, E. Varvarigos, P. Demeester, "Cost comparison of different Translucent Optical Network

- Architectures", Conference of Telecommunication, Media and Internet Techno-Economics (CTTE), 2010.
- [C69] P. Kokkinos, K. Christodoulopoulos, K. Manousakis, E. Varvarigos, "Multi-Parametric Online RWA based on Impairment Generating Sources", IEEE Global Conference on Communications (GLOBECOM), 2009.
 - [C70] K. Christodoulopoulos, K. Manousakis, M. Angelou, I. Tomkos, E. Varvarigos, "A Multicost Approach to Online Impairment-Aware RWA", IEEE International Conference on Communications (ICC), 2009.
 - [C71] K. Christodoulopoulos, K. Manousakis, E. Varvarigos, "Cross-layer Optimization of Static Lightpath Demands in Transparent WDM Optical Networks", IEEE Information Theory Workshop (ITW), 2009.
 - [C72] K. Manousakis, K. Christodoulopoulos, E. Varvarigos, "Impairment-Aware Offline RWA for Transparent Optical Networks", IEEE Conference on Computer Communications (INFOCOM), 2009.
 - [C73] K. Christodoulopoulos, K. Manousakis, E. Varvarigos, "Comparison of Routing and Wavelength Assignment Algorithms in WDM Networks", IEEE Global Telecommunications Conference (GLOBECOM), 2008.
 - [C74] E. Varvarigos, V. Sourlas, K. Christodoulopoulos, "Routing and Scheduling Sessions in Networks that Support Advance Reservations", International Conference on Broadband Communications, Networks and Systems (BROADNETS), 2008.
 - [C75] K. Christodoulopoulos, N. Doulamis, E. Varvarigos, "Joint Communication and Computation Task Scheduling in Grids", IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid), 2008.
 - [C76] P. Kokkinos, K. Christodoulopoulos, A. Kretsis, E. Varvarigos, "Data Consolidation: A Task Scheduling and Data Migration Technique for Grid Networks", IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid), 2008.
 - [C77] K. Christodoulopoulos, E. Varvarigos, C. Develder, M. Leenheer, B. Dhoedt, "Job Demand Models For Optical Grid Research", International Conference on Optical Networking Design and Modeling (ONDM), 2007.
 - [C78] K. Christodoulopoulos, V. Gkamas, E. Varvarigos, "Delay Components of Job Processing in a Grid: Statistical Analysis and Modeling", International Conference on Networking and Services (ICNS), 2007.
 - [C79] M. Oikonomakos, K. Christodoulopoulos, E. Varvarigos, "Profiling Computation Jobs in Grid Systems", IEEE/ACM International Symposium on Cluster Computing and the Grid (CCGrid), 2007.
 - [C80] K. Christodoulopoulos, K. Vlachos, K. Yiannopoulos, E. Varvarigos, "Relaxing Delayed Reservations: An approach for QoS provision and service differentiation in Optical Burst Switching networks", International Conference on Broadband Communications, Networks and Systems (BROADNETS), 2006.
 - [C81] K. Ramantas, K. Christodoulopoulos, K. Vlachos, E. Van Breusegem, M. Pickavet, "SLIP-IN Architecture: A new Hybrid Optical Switching Scheme", International Conference on Broadband Communications, Networks and Systems (BROADNETS), 2006.

- [C82] K. Christodoulopoulos, E. V. Breusegem, K. Vlachos, M. Pickavet, E. Varvarigos, D. Colle, "Performance Evaluation of Overspill Routing in Optical Networks", IEEE International Conference on Communications (ICC), 2006.
 - [C83] L. Stampoulidis, E. Kehayas, K. Vysokinos, K. Christodoulopoulos, D. Tsiokos, Bakopoulos, T. Kanellos, K. Vlachos, E. A. Varvarigos and H. Avramopoulos, "ARTEMIS: A 40 Gb/s All-Optical Self-Routing Node and Network Architecture employing Asynchronous Bit and Packet-Level Optical Signal Processing", IEEE Global Telecommunications Conference (GLOBECOM), 2005.
 - [C84] K. Vysokinos, E. Kehayas, L. Stampoulidis, H. Avramopoulos, K. Christodoulopoulos, K. Vlachos, E. A. Varvarigos, "ARTEMIS: A New Architecture for All-Optical Asynchronous Self-Routing Network with Efficient Contention Protection and QoS Differentiation", European Conference on Optical Communication (ECOC), 2005.
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Invited Talks

- [I1] A. Selentis, K. Christodoulopoulos, G.T. Kanellos, "Comparing Relayed and Switched QKD in Ring Networks", International Conference on Transparent Optical Networks (ICTON), 2025.
- [I2] K. Christodoulopoulos, "Scaling Industrial Networks with Independent Scheduling Domains", Workshop: 5G: new industrial revolution or only higher bandwidth?, International Conference on Optical Network Design and Modeling (ONDM), 2020.
- [I3] K. Christodoulopoulos, K. Kontodimas, L. Dembeck, E. Varvarigos, "Slotted Optical Datacenter Networks with Sub-Wavelength Resource Allocation", Optical Fiber Communication Conference (OFC), 2019.
- [I4] K. Christodoulopoulos, I. Sartzetakis, P. Soumplis, E. Varvarigos, "Machine Learning Assisted Quality of Transmission Estimation and Planning with Reduced Margins", International Conference on Optical Network Design and Modeling (ONDM), 2019.
- [I5] C. Delezoide, K. Christodoulopoulos, A. Kretsis, N. Argyris, G. Kanakis, A. Sgambelluri, N. Sambo, P. Giardina, G. Bernini, D. Roccatto, A. Percelsi, R. Morro, H. Avramopoulos, E. Varvarigos, P. Castoldi, P. Layec, S. Bigo, "Pre-emptive detection and localization of failures towards marginless operations of optical networks", International Conference on Transparent Optical Networks (ICTON), 2018.
- [I6] A. Kretsis, P. Soumplis, K. Christodoulopoulos, E. Varvarigos, "DEPLOY Tool: Incrementally Planning Marginless Elastic Optical Networks", International Conference on Transparent Optical Networks (ICTON), 2018.
- [I7] K. Christodoulopoulos, I. Sartzetakis, P. Soumplis, E. Varvarigos, "Cross-layer and dynamic network orchestration based on optical performance monitoring", International Conference on Optical Network Design and Modeling (ONDM), 2017.
- [I8] I. Sartzetakis, K. Christodoulopoulos, E. Varvarigos, "Improving QoT estimation accuracy through active monitoring", International Conference on Transparent Optical Networks (ICTON), 2017.

- [I9] K. Yiannopoulos, K. Kontodimas, K. Christodoulopoulos, E. Varvarigos, "Resource partitioning in the NEPHELE datacentre interconnect", International Conference on Transparent Optical Networks (ICTON), 2017.
- [I10] A. Kretsis, L. Corazza, K. Christodoulopoulos, P. Kokkinos, E. Varvarigos, "An emulation environment for SDN enabled flexible IP/optical networks", International Conference on Transparent Optical Networks (ICTON), 2016.
- [I11] K. Christodoulopoulos, K. Kontodimas, K. Yiannopoulos, E. Varvarigos, "Bandwidth allocation in the NEPHELE hybrid optical interconnect", International Conference on Transparent Optical Networks (ICTON), 2016
- [I12] K. Christodoulopoulos, E. Varvarigos, "Evaluating flexibility degrees in optical networks", Optical Fiber Communication Conference (OFC), 2015.
- [I13] K. Christodoulopoulos, P. Kokkinos, A. Di Giglio, A. Pagano, N. Argyris, C. Spatharakis, S. Dris, H. Avramopoulos, JC. Antona, C. Delezoide, P. Jennev , J. Pesic, Y. Pointurier, N. Sambo, F. Cugini, P. Castoldi, G. Bernini , G. Carrozzo, and E. Varvarigos, "ORCHESTRA - Optical performance monitoring enabling flexible networking", International Conference on Transparent Optical Networks (ICTON), 2015.
- [I14] P. Castoldi, G. Bernini, K. Christodoulopoulos, F. Cugini, N. Sambo, "A monitoring architecture for self-configurable optical networks", International Conference on Transparent Optical Networks (ICTON), 2015.
- [I15] P. Soumplis, P. Papanikolaou, K. Christodoulopoulos, N. Argyris, C. Spatharakis, S. Dris, H. Avramopoulos, E. Varvarigos, "Cross-layer optimization: Network cost vs. physical layer margins", International Conference on Transparent Optical Networks (ICTON), 2015.
- [I16] E. Varvarigos, K. Christodoulopoulos, "Algorithmic challenges in flexible optical networks", International Conference on Computing, Networking and Communications (ICNC), 2014.
- [I17] A. Siokis, K. Christodoulopoulos, E. Varvarigos, "On-OPCB interconnection networks", International Conference on Transparent Optical Networks (ICTON), 2014.
- [I18] A. Kretsis, P. Kokkinos, K. Christodoulopoulos, E. Varvarigos, "Mantis: Optical network planning and operation tool", International Conference on Transparent Optical Networks (ICTON), 2013.
- [I19] K. Christodoulopoulos, E. Varvarigos, "Static and dynamic spectrum allocation in flexi-grid optical networks", International Conference on Transparent Optical Networks (ICTON), 2012.
- [I20] E. Varvarigos, K. Christodoulopoulos, "Algorithmic aspects of optical network design", International Conference on Optical Network Design and Modeling, (ONDM), 2011.
- [I21] K. Christodoulopoulos, "Elastic Bandwidth Allocation in Flexible OFDM-based Optical Networks", Workshop on Cross-layer Algorithms and Protocols for Optical Networks, International Conference on Broadband Communications, Networks and Systems (BROADNETS), 2010.
- [I22] K. Christodoulopoulos, P. Kokkinos, K. Manousakis, E. Varvarigos, "Cross Layer RWA in WDM Networks: Is the Added Complexity Useful or a Burden?", International Conference on Transparent Optical Networks, (ICTON), 2009.

- [I23] K. Christodoulopoulos, I. Tomkos, E. Varvarigos, "A Comparison of Offline IARWA Approaches", Networks and Optical Communications - Optical Cabling and Infrastructure (NOC-OCI), 2009.
 - [I24] K. Christodoulopoulos, E. Varvarigos, "Routing and Scheduling in Grids", International Conference on Transparent Optical Networks, (ICTON), 2008.
-

Posters

- [P1] P. Soumplis, K. Christodoulopoulos, P. Kokkinos, M. Quagliotti, A. Di Giglio, A. Napoli, M. Hosseini, K. Yiannopoulos, E. Varvarigos, "Optimization of router cost and consumption in a point-to-multipoint metro-core architecture", Optical Fiber Communication Conference (OFC), W2A. 45, 2025.
 - [P2] K. Christodoulopoulos, N. Makris, G.T. Kanellos, D. Syvridis, "Optimizing Key Consumption in Switched QKD Networks", Optical Fiber Communication Conference (OFC), W2A. 34, 2024.
 - [P3] K. Christodoulopoulos, P. Soumplis, I. Sartzetakis, M. Quagliotti, A. Di Giglio, A. Pagano, N. Argyris, C. Spatharakis, S. Dris, H. Avramopoulos, J.C. Antona, C. Delezoide, P. Jennev  , J. Pesic, Y. Pointurier, N. Sambo, F. Cugini, P. Castoldi, G. Bernini, F. Moscatelli, G. Carrozzo, E. Varvarigos, " ORCHESTRA- Optical performance monitoring enabling flexible networking", European Conference on Networks and Communications (EuCNC), 2016.
 - [P4] N. Sambo, K. Christodoulopoulos, P. Castoldi, E. Varvarigos, " Spectrum sharing for elastic transmission parameter adaptation", European Conference on Optical Communication (ECOC), 2016.
 - [P5] V. Gkamas, K. Christodoulopoulos, E. Varvarigos, "A comparison study of joint and sequential multi-layer planning for IP over flexible optical networks", Optical Fiber Communications Conference (OFC), 2015.
 - [P6] K. Christodoulopoulos, K. Katrinis, M. Ruffini, D. O'Mahony, "Accelerating HPC workloads with dynamic adaptation of a software-defined hybrid electronic/optical interconnect", Optical Fiber Communication Conference (OFC), 2014.
 - [P7] K. Christodoulopoulos, M. Angelou, D. Klonidis, P. Zakynthinos, E. Varvarigos, I Tomkos, "Value analysis methodology for flexible optical networks", ECOC 2011.
 - [P8] K. Manousakis, K. Christodoulopoulos, E. Varvarigos, "Avoiding Adjacent Channel Interference in Static RWA", 6th International Symposium on communication systems, networks and digital signal processing (CSNDSP), Graz, Austria, 2008.
 - [P9] K. Christodoulopoulos, N. Doulamis, E. Varvarigos "Joint Communication and Computation Task Scheduling in Grids", E-science Conference, Bangalore, India, 2007. **Best poster award**
 - [P10] K. Christodoulopoulos, E. Varvarigos "Statistical Analysis of the Workload and Modeling of the Time a Job Spends at Different States in the LCG/EGEE Environment", EGEE Conference, 2007.
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Patents

- [Pat1] P. Tsiaflakis, K. Christodoulopoulos, S. Bidkar, "Bandwidth Allocation", United States Patent US12317013B2, issued 2025-05-27.
- [Pat2] C. Delezoide, K. Christodoulopoulos, T. Zami, M. L.E. Monnier, "Tuning multiple laser sources in an optical network ", European Patent office, EP3866360A1, issued 2021-08-18.
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