

**UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

IARNACH TECHNOLOGIES LTD.,

Plaintiff,

v.

CHARTER COMMUNICATIONS, INC.,
CHARTER COMMUNICATIONS HOLDING
COMPANY, LLC, CHARTER
COMMUNICATIONS OPERATING, LLC,
SPECTRUM MANAGEMENT HOLDING
COMPANY, LLC, and SPECTRUM GULF
COAST, LLC,

Defendants.

Civil Action No. 2:24-cv-00230-JRG

JURY TRIAL DEMANDED

**DEFENDANTS' PRELIMINARY CLAIM CONSTRUCTIONS
AND IDENTIFICATION OF EXTRINSIC EVIDENCE**

Pursuant to the Court's Docket Control Order (Dkt. 55) and Patent Rule 4-2, defendants Charter Communications, Inc.; Charter Communications Holding Company, LLC; Charter Communications Operating, LLC; Spectrum Management Holding Company, LLC; and Spectrum Gulf Coast, LLC (collectively "Defendants") provide the following preliminary claim constructions to plaintiff Iarnach Technologies Ltd. ("Iarnach"). In addition, where relevant, Defendants provide a preliminary identification of extrinsic evidence that supports their preliminary proposed claim constructions. Because the parties must meet and confer after the exchange of the terms and proposed constructions in accordance with the Court's Scheduling Order, Defendants expressly reserve their right to add, remove, and supplement the terms, proposed constructions, and evidence identified herein during that meet and confer process.

Defendants have selected the proposed claim terms from the currently asserted claims of U.S. Patent Nos. 8,942,378 (the “378 patent”); U.S. Patent No. 9,287,982 (the “982 patent”); and U.S. Patent No. 9,674,035 (the “035 patent”). Should Iarnach be allowed to assert additional claims, or should other claims become relevant, Defendants reserve the right to identify any additional terms and propose additional constructions.

Defendants will identify at a later date, consistent with Patent Rule 4-3, the intrinsic evidence supporting their proposed claim constructions, including but not limited to the specification, the prosecution history, *inter partes* review proceedings, and the cited references on the face of, or identified in, the specification or prosecution history of each asserted patent and any related patents or patent applications.

I. DEFENDANTS’ PRELIMINARY CLAIM CONSTRUCTIONS

Subject to the foregoing, Defendants identify preliminary claim constructions for the terms the parties jointly identified from the asserted claims. The chart below identifies the terms identified by both parties that should be construed with reference to the asserted claims where each term occurs; for the sake of clarity, any unlisted occurrence of a term or similar term in an asserted claim is also proposed for construction. Terms that are similar, or that present the same claim construction issues, are grouped accordingly in the chart below.

Claim terms and phrases identified below are those in the parties’ April 7, 2025 Patent Rule 4-1 Disclosures of Proposed Claim Terms for Construction. In so doing, Defendants do not concede that any claim term or phrase solely appearing in Plaintiff’s Patent Rule 4-1 Disclosure requires construction by the Court. Note that Defendants no longer seek to construe “acquisition unit,” “analyzing unit,” “configuration unit,” “key generation unit,” “encryption unit,” and “sending unit,” and these terms therefore do not appear below as Plaintiff has not elected to construe them.

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
“configuring the OLT locally according to the configuration information of the OLT and meanwhile configuring the ONU according to the configuration information of the ONU”	982 patent, claims 1, 5, 6	Defendants	“configuring the OLT, by functionality running on the OLT, according to the configuration information of the OLT and at the same time, configuring the ONU according to the configuration information of the ONU”	DOCSIS Provisioning of EPON, DPoE Architecture Specification, DPoE-SP-ARCHv2.0-I08-230322 at, e.g., 35. (CHARTER00379895) DOCSIS Provisioning of EPON, Operations and Support System Interface Specification, DPoE-SP-OSSIV2.0-I13-230322 at, e.g., 35-36. (CHARTER00380385-0386) Dr. George Rouskas¹ may provide opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“service auto-configuration method for a DOCSIS	982 patent, claims 1, 6	Defendants	Preamble as limiting.	DOCSIS Provisioning of EPON, MAC and Upper Layer Protocols Interface Specification, DPoE-SP-MULPIv2.0-

¹ Dr. George Rouskas' CV is attached as Exhibit A.

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
Provisioning of EPON (DPoE) System”				I14-230322 at, e.g., 74-79. (CHARTER00380424-0429) Dr. George Rouskas may provide opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“DPOE System”	982 patent, claims 1, 4, 6-7 035 patent, claims 19, 25, 31²	Plaintiff	Plain and ordinary meaning “A system for enabling Ethernet Passive Optical Network (EPON) equipment to be used for DOCSIS (Data Over Cable Service Interface Specification)-based provisioning”	DOCSIS Provisioning of EPON, DPoE Architecture Specification, DPoE-SP-ARCHv2.0-I08-230322 at, e.g., 18, 21, 36. (CHARTER00379878, -9881, -9896) Dr. George Rouskas may provide opinions regarding how a person of ordinary skill in the art would understand

² Plaintiff is not asserting 035 patent claims 19, 25, or 31, and has not explained why construction for non-asserted claims is necessary; Defendants provide a preliminary claim construction out of caution, and object to the inclusion of non-asserted claims. The same response and objection applies to all other terms recited in non-asserted claims (378 patent, claims 5, 8, 13).

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
				this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
"optical line terminal (OLT)"	982 patent, claims 1-6, 8-11 378 patent, claims 1, 9 035 patent, claims 19, 25, 31	Plaintiff	Plain and ordinary meaning "service operator-end device in an Ethernet Passive Optical Network (EPON)"	DOCSIS Provisioning of EPON, DPoE Architecture Specification, DPoE-SP-ARCHv2.0-I08-230322 at, e.g., 9. (CHARTER00379869) IEEE Std 802.3ah-2004, IEEE Standard for Information Technology-Telecommunications and Information Systems – Local and Metropolitan Area Networks – Specific Requirements, Part 3 at, e.g., 4. (CHARTER00379241) Harry Newton, <i>Newton's Telecom Dictionary</i> (21st Ed.) at, e.g., 605. (CHARTER00380648) Dr. George Rouskas may provide opinions regarding how a person of

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
				ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“optical network unit (ONU)”	982 patent, claims 1-6, 8-11 378 patent, claims 1, 9 035 patent, claims 19, 25, 31	Plaintiff	Plain and ordinary meaning “subscriber-end device in an Ethernet Passive Optical Network (EPON) that is DPoE compliant”	DOCSIS Provisioning of EPON, DPoE Architecture Specification, DPoE-SP-ARCHv2.0-I08-230322 at, e.g., 18. (CHARTER00379878) IEEE Std 802.3ah-2004, IEEE Standard for Information Technology-Telecommunications and Information Systems – Local and Metropolitan Area Networks – Specific Requirements, Part 3 at, e.g., 4. (CHARTER00379241) Harry Newton, <i>Newton's Telecom Dictionary</i> (21st Ed.) at, e.g., 607. (CHARTER00380649) Dr. George Rouskas may provide

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
				opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“back-office management system”	982 patent, claims 1, 5, 6 035 patent, claims 1-2, 5-6, 9-10, 13-14, 20, 26, 32	Both	“a system comprising network management equipment within a DPoE Network, which includes a Trivial File Transfer Protocol (TFTP) Server and Dynamic Host Control Protocol (DHCP) Server”	Dr. George Rouskas may provide opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“multicast service”	378 patent, claims 1-9, 11-13	Defendants	“a service in which all users who meet the requirements receive and use the same service data”	DOCSIS Provisioning of EPON, MAC and Upper Layer Protocols Interface Specification, DPoE-SP-MULPIv2.0-I14-230322 at, e.g., 53-56.

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
				(CHARTER00380157-0160) Dr. George Rouskas may provide opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“service”	378 patent, claims 1-9, 11-13	Plaintiff	No construction necessary; alternatively, plain and ordinary meaning.	Dr. George Rouskas may provide opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
“notifying...providing” / “notifies...provides” / “receiving a notification...obtaining the updated configuration file” / “receives a notification...obtains the updated configuration file”/“receiving a notification...obtaining the updated configuration file”/“means for receiving...means for obtaining the updated configuration file”	035 patent, claims 1, 5, 9, 13, 14, 20, 26, 32	Defendants	These steps occur in the same order as recited in the claims.	Dr. George Rouskas may provide opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“virtual cable modem (vCM)”	035 patent, claims 1, 3-5, 7-9, 11-13	Plaintiff	Plain and ordinary meaning “software component in a DPoE System used to emulate the function of a CM (cable modem)”	DOCSIS Provisioning of EPON, DPoE Architecture Specification, DPoE-SP-ARCHv2.0-I08-230322 at, e.g., 26. (CHARTER00379886) DOCSIS Provisioning of EPON, MAC and Upper Layer Protocols Interface Specification, DPoE-SP-MULPIv2.0-I14-230322 at, e.g., 25. (CHARTER00380129)

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
				Dr. George Rouskas may provide opinions regarding how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“a generator that generates an updated configuration file for the ONU” “means for generating an updated configuration file for the ONU”	035 patent, claims 5, 13	Both	Governed by 35 U.S.C. § 112(f). Function: generating/generates an updated configuration file for the ONU Structure: instruction steps disclosed at 035 patent, 1:38-41, 2:47-55, 3:7-12, 3:34-39, 4:52-63, 5:28-51, 7:24-42, 8:10-15, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, and equivalents thereof.	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“a notifier that notifies	035 patent,	Both	Governed by 35 U.S.C. § 112(f).	Dr. George Rouskas may provide

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
a virtual cable modem (vCM), prior to successful update of the ONU, that the updated configuration file is available for the ONU” “means for notifying a virtual cable modem (vCM), prior to successful update of the ONU, that the updated configuration file is available for the ONU”	claims 5, 13		Function: notifying/notifies a virtual cable modem (vCM), prior to successful update of the ONU, that the updated configuration file is available for the ONU Structure: instruction steps disclosed at 035 patent, 1:38-41, 2:47-55, 3:7-12, 3:34-39, 4:52-63, 5:28-51, 7:24-42, 8:10-15, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, and equivalents thereof.	opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“a file provider that provides, when requested by the vCM, to the vCM, the updated configuration file” “means for providing, when requested by the vCM, to the vCM, the updated configuration file”	035 patent, claims 5, 13	Both	Governed by 35 U.S.C. § 112(f). Function: providing/provides, when requested by the vCM, to the vCM, an updated configuration file Structure: instruction steps disclosed at 035 patent, 1:38-41, 2:47-55, 3:7-12, 3:34-39, 4:52-63, 5:28-51, 7:24-42, 8:10-15, Figure 2, Figure 3, Figure 4,	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
			Figure 5, Figure 6, and equivalents thereof.	extrinsic evidence.
“a monitor that monitors the vCM for an indication of successful update of the ONU by the vCM using the updated configuration file” “means for monitoring the vCM for an indication of successful update of the ONU by the vCM using the updated configuration file”	035 patent, claims 5, 13	Both	Governed by 35 U.S.C. § 112(f). Function: monitoring/monitors the vCM for an indication of successful update of the ONU by the vCM using the updated configuration file Structure: instruction steps disclosed at 035 patent, 1:38-41, 2:47-55, 3:7-12, 3:34-39, 4:52-63, 5:28-51, 7:24-42, 8:10-15, Figure 2, Figure 3, Figure 4, Figure 5, Figure 6, and equivalents thereof.	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“a receiver that receives a notification that an updated configuration file is available for the ONU” “means for receiving a notification that an updated configuration file is available for the	035 patent, claims 20, 32	Both	Governed by 35 U.S.C. § 112(f). Function: receiving/receives a notification that an updated configuration file is available for the ONU Structure: instruction steps disclosed at 035 patent, 5:24-51, 7:43-8:7, 8:10-15, Figure 2,	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
ONU”			Figure 3, Figure 4, Figure 7, Figure 8, and equivalents thereof.	patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“an obtainer that obtains the updated configuration file” “means for obtaining the updated configuration file”	035 patent, claims 20, 32	Both	Governed by 35 U.S.C. § 112(f). Function: obtaining/obtains the updated configuration file Structure: instruction steps disclosed at 035 patent, 5:24-51, 7:43-8:7, 8:10-15, Figure 2, Figure 3, Figure 4, Figure 7, Figure 8, and equivalents thereof.	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“a first validator that performs a first validation of the updated configuration file for structural errors” “means for performing a first validation of the updated configuration file for structural	035 patent, claims 20, 32	Both	Governed by 35 U.S.C. § 112(f). Function: performing/performs a first validation of the updated configuration file for structural errors Structure: instruction steps disclosed at 035 patent, 5:24-51, 6:1-15, 7:43-8:7, 8:10-19, Figure	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
errors”			2, Figure 3, Figure 4, Figure 7, Figure 8, and equivalents thereof.	histories, the claim language, and/or the extrinsic evidence.
“a determiner that determines changes between the current configuration file of the ONU and the updated configuration file to identify ONU resources to implement to the changes” “means for determining changes between the current configuration file of the ONU and the updated configuration file to identify ONU resources to implement to the changes”	035 patent, claims 20, 32	Both	Governed by 35 U.S.C. § 112(f). Function: determining/determines changes between the current configuration file of the ONU and the updated configuration file to identify ONU resources to implement to the changes Structure: instruction steps disclosed at 035 patent, 6:35-487:49-8:7, Figure 2, Figure 3, Figure 4, Figure 7, Figure 8, and equivalents thereof.	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“a second validator that performs a second validation about whether the ONU resources to implement the changes are	035 patent, claims 20, 32	Both	Governed by 35 U.S.C. § 112(f). Function: performing/performs a second validation about whether the ONU resources to implement the changes are available or not at	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art

Claim Terms	Asserted Patent(s) / Claim(s)	Party Proposing Term	Defendants' Proposed Constructions	Preliminary Extrinsic Evidence
available or not at the ONU” “means for performing a second validation about whether the ONU resources to implement the changes are available or not at the ONU”			the ONU Structure: instruction steps disclosed at 035 patent, 5:24-51, 6:35-64, 7:43-8:7, 8:10-19, Figure 2, Figure 3, Figure 4, Figure 7, Figure 8, and equivalents thereof.	concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.
“an applier that applies the changes to the ONU when it is determined that the ONU resources to implement the changes are available at the ONU” “means for applying the changes to the ONU when it is determined that the ONU resources to implement the changes are available at the ONU”	035 patent, claims 20, 32	Both	Governed by 35 U.S.C. § 112(f). Function: applying/applies the changes to the ONU when it is determined that the ONU resources to implement the changes are available at the ONU Structure: instruction steps disclosed at 035 patent, 5:24-51, 7:43-8:7, 8:10-19, Figure 2, Figure 3, Figure 4, Figure 7, Figure 8, and equivalents thereof.	Dr. George Rouskas may provide opinions regarding the underlying structure and function, as well as how a person of ordinary skill in the art would understand this claim term, including technical background and state of the art concerning the claim term and what one of ordinary skill in the art would understand the claim term to mean in view of the knowledge in the field, the patent specifications, the prosecution histories, the claim language, and/or the extrinsic evidence.

II. DEFENDANTS' PRELIMINARY IDENTIFICATION OF EXTRINSIC EVIDENCE

Defendants preliminarily identify the following extrinsic evidence that supports their claim constructions. Defendants reserve the right to present any additional evidence in rebuttal and in response to extrinsic evidence Plaintiff may identify.

Defendants' identification of extrinsic evidence is not exhaustive. Defendants reserve the right to identify additional extrinsic and intrinsic evidence, including additional subject matter for expert testimony, as necessary, in response and/or in rebuttal to Plaintiff's proposed constructions and Plaintiff's identification of extrinsic evidence. Accordingly, Defendants reserve the right to amend, modify, or supplement this disclosure as it deems appropriate. Defendants reserve the right to offer evidence and argument regarding any construction offered by Plaintiff.

- IEEE Std 802.3-2012, IEEE Standard for Ethernet, December 2012 (CHARTER00378587-9220)
- IEEE Std 802.3ah-2004, IEEE Standard for Information Technology-Telecommunications and Information Systems – Local and Metropolitan Area Networks – Specific Requirements, Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications, Amendment: Media Access Control Parameters, Physical Layers, and Management Parameters for Subscriber Access Networks (CHARTER00379221-9860)
- DOCSIS Provisioning of EPON, DPoE Architecture Specification, DPoE-SP-ARCHv2.0-I08-230322, March 22, 2023, Cable Television Laboratories, Inc. (CHARTER00379861-9923)
- DOCSIS Provisioning of EPON, IP Network Element Requirements, DPoE-SP-IPNEv2.0-I08-230322, March 22, 2023, Cable Television Laboratories, Inc. (CHARTER00379924-0027)
- DOCSIS Provisioning of EPON, Metro Ethernet Forum Specification, DPoE-SP-MEFv2.0-I07-220322, March 22, 2023, Cable Television Laboratories, Inc. (CHARTER00380028-0104)
- DOCSIS Provisioning of EPON, MAC and Upper Layer Protocols Interface Specification, DPoE-SP-MULPIv2.0-I14-230322, March

22, 2023, Cable Television Laboratories, Inc.
(CHARTER00380105-0233)

- DOCSIS Provisioning of EPON, OAM Extensions Specification, DPoE-SP-OAMv2.0-I15-230322, March 22, 2023, Cable Television Laboratories, Inc. (CHARTER00380234-0350)
- DOCSIS Provisioning of EPON, Operations and Support System Interface Specification, DPoE-SP-OSSIV2.0-I13-230322, March 22, 2023, Cable Television Laboratories, Inc. (CHARTER00380351-0523)
- DOCSIS Provisioning of EPON, Physical Layer Specification, DPoE-SP-PHYv2.0-I07-230322, March 22, 2023, Cable Television Laboratories, Inc. (CHARTER00380524-0557)
- DOCSIS Provisioning of EPON, Security and Certificate Specification, DPoE-SP-SECv2.0-I07-230322, March 22, 2023, Cable Television Laboratories, Inc. (CHARTER00380558-0645)
- Harry Newton, *Newton's Telecom Dictionary* (21st Ed.), CMP Books (2005) (CHARTER00380646-0649)

To support their preliminary constructions, and any modifications to them that may be made during the meet and confer process, Defendants may rely on the expert testimony of Dr. George Rouskas, or other experts, relating to: the overview of the relevant technology; the state of the art at the time the applications that issued as the asserted patents were filed; the level of one of ordinary skill in the art relevant to the asserted patents; how one of ordinary skill in the art would understand the disputed claim terms and elements in light of the specifications and statements made by the applicants to the Patent Office during prosecution and *inter partes* review of the asserted patents, and state of the art; the ordinary meaning of the disputed claim terms and elements as understood by one of ordinary skill in the art; the proper construction of claim terms; the structures, if any, described in the specification for the terms governed by 35 U.S.C. § 112(f); the functions of the terms governed by 35 U.S.C. § 112(f); that certain terms are governed by 35 U.S.C. § 112(f); and response to any expert testimony and evidence advanced by Plaintiff. Any

such expert witnesses may also offer testimony if necessary to respond to Plaintiff's contentions, any expert testimony Plaintiff will advance, or for the Court's benefit or in response to the Court's request.

Copies of the above extrinsic evidence are produced with this Patent Rule 4-2 disclosure.

Dated: April 28, 2025

Respectfully submitted,

Of Counsel:

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Counsel for Defendants Charter Communications, Inc., Charter Communications Holding Company, LLC, Charter Communications Operating, LLC, Spectrum Management Holding Company, LLC, and Spectrum Gulf Coast, LLC

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on **April 28, 2025**, a true and correct copy of the above and foregoing document has been served on all counsel of record via electronic mail per Local Rule CV-5.

/s/ Saina S. Shamilov
Saina S. Shamilov

Exhibit A

VITA

George N. Rouskas

Alumni Distinguished Graduate Professor

Department of Computer Science

North Carolina State University

Raleigh, NC 27695-8206

<http://rouskas.csc.ncsu.edu/>

February 2025

Education

Ph.D.	1994	Georgia Institute of Technology	Computer Science
M.S.	1991	Georgia Institute of Technology	Computer Science
B.S.	1989	National Technical University of Athens	Computer Engineering

Employment History

Alumni Distinguished Graduate Professor (Professor 2002-2018 Associate Professor 1999-2002 Assistant Professor 1994-1999)	Department of Computer Science North Carolina State University Raleigh, NC	1994-present
Director of Faculty Advancement	Department of Computer Science	January 2025-present
Director of Graduate Programs	Department of Computer Science	January 2014-June 2024

Visiting Positions

Distinguished Scientist	King Abdulaziz University, Saudi Arabia	2013-2021
Visiting Professor	Laboratoire d'Informatique University of Paris 6, France	October 2012
Visiting Professor	Universidad Tecnica Federico Santa Maria, Chile	December 2008
Visiting Professor	Laboratoire de Méthodes Informatiques University of Evry, France	July 2006 December 2002 June 2000
Network Architect (Sabbatical)	Vitesse Semiconductor	August 2000-May 2001

Honors and Awards

OUTSTANDING TECHNICAL ACHIEVEMENT AWARD, ONTC, IEEE Communications Society, 2024

PERSON OF EXCEPTIONAL PERFORMANCE (PEP) AWARD, Department of Computer Science, 2023-24

CARLA SAVAGE AWARD, Department of Computer Science, October 2020

OUTSTANDING SERVICE AWARD, Optical Networking Tech. Cmte (ONTC), IEEE Commun. Society, 2019

ALUMNI DISTINGUISHED GRADUATE PROFESSOR, NC State, 2018

Iarnach EX2009

JOYCE HATCH SERVICE AWARD, NC State Chapter of ACM/AITP, 2015

MOST RECEPTIVE GRADUATE PROFESSOR AWARD, NC State Chapter of ACM/AITP, 2014

FELLOW, INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE), 2012

CAROL MILLER GRADUATE LECTURER AWARD, NC State Chapter of ACM/AITP, 2012

IEEE DISTINGUISHED LECTURER, 2010-2011

OUTSTANDING SERVICE AWARD, IEEE GLOBECOM, 2010

IBM FACULTY AWARD, 2007

BEST PAPER AWARD, *EVGM Workshop*, 2007 (with C. Castillo and K. Harfoush)

BEST PAPER AWARD, *CSNDSP Symposium*, 2006 (with B. Chen and R. Dutta)

ALCOA FOUNDATION ENGINEERING RESEARCH ACHIEVEMENT AWARD, CoE, NC State, 2004

ACADEMY OF OUTSTANDING TEACHERS, NC State, 2004

ALUMNI OUTSTANDING RESEARCH AWARD, NC State, 2003

BEST PAPER AWARD, *SPIE Conference on All-Optical Networking*, 1998 (with I. Baldine)

CAREER AWARD, NATIONAL SCIENCE FOUNDATION (NSF), 1997

OUTSTANDING NEW TEACHER AWARD, Department of Computer Science, NC State, 1995

GRADUATE RESEARCH AWARD, College of Computing, Georgia Institute of Technology, 1994

I. Teaching and Mentoring

Courses Taught

- CSC 316 – DATA STRUCTURES (undergraduate)
- CSC 401 – COMPUTER NETWORKS (undergraduate)
- CSC/ECE 573 – INTERNET PROTOCOLS (graduate)
- CSC/ECE 579 – INTRODUCTION TO COMPUTER PERFORMANCE EVALUATION (graduate)
- CSC/ECE 772 – SURVIVABLE NETWORKS (graduate)
- CSC/ECE 778 – OPTICAL NETWORKS (graduate)

Visiting Scholars

4. DR. KAMAL JAMBI, 2018-19 (King Abdulaziz University, Jeddah, Saudi Arabia)
Research: *Machine Learning Applications to Network Control Plane*
3. DR. YU XIONG, 2016-2017 (Chongqing University of Posts and Telecommunications (CUPT), China)
Research: *Optical and Datacenter Networks*
2. DR. OMAR BATARFI, 2014-2015 (King Abdulaziz University, Jeddah, Saudi Arabia)
Research: *Visible Light Communications*
1. DR. EVRIPIDIS BAMPIS, 2005-2006 (Paris VI University, France)
Research: *Packet Scheduling*

Post Doctoral Fellows

3. DR. EMRE YETGINER, 2008-2009
Research: *Traffic Grooming for Green Optical Networking*
2. DR. A. HALIM ZAIM, 2001-2002
Research: *Implementation of Signaling Protocols for Optical Burst-Switched Networks*
1. DR. SRIDHAR RAMESH, 1999-2000
Research: *Performance Analysis of Wavelength Routed Networks*

Ph.D. Students Supervised – Graduated

25. LINGNAN GAO, 2019
Dissertation: *Resource Allocation in Virtual Network Environments*
Outstanding Research Award, 2019
Outstanding Teaching Assistant Award, 2016
24. SHIREESH BHAT, 2017
Dissertation: *Network Service Orchestration within the ChoiceNet Architecture*
23. RAMESH KRISHNAMURTHY, 2016
Dissertation: *A Framework for Evaluating Server Performance: Application to SIP Proxy Servers*

22. SAHAR TALEBI, 2015
Dissertation: *On Routing and Spectrum Assignment in Elastic Optical Networks*
21. AHMET CAN BABAOGLU, 2014
Dissertation: *Verification Services for the Choice-Based Internet of the Future*
20. HUI WANG, 2013
Dissertation: *Efficient Decomposition Techniques for Traffic Grooming Problems in Optical Networks*
19. ZEYU LIU, 2012
Dissertation: *On Routing and Wavelength Assignment in WDM Networks*
18. MOHAN IYER, 2010
Dissertation: *Providing Bandwidth on Demand Services Using Optical Network Design and the SILO Network Architecture*
Outstanding Teaching Assistant Award, 2009
17. QIAN LV (2010)
Dissertation: *Economic Models for Internet Tiered Services*
16. ANJING WANG, 2010
Dissertation: *Optimization of Silo Services for the Future Internet*
Outstanding Teaching Assistant Award, 2009
15. ZYAD DWEKAT 2009
Dissertation: *Practical Fair Queueing Schedulers: Simplification Through Quantization*
14. CLARIS CASTILLO, 2008
Dissertation: *Scheduling and Resource Management in Grids*
College of Engineering Nancy G. Pollock PhD Dissertation Award, 2008
Google Anita Borg Scholarship, 2007
Outstanding Teaching Assistant Award, 2006
13. LI YANG, 2006
Dissertation: *Congestion Control and Quality of Service (QoS) Provisions for Optical Burst Switched Networks*
12. BENSONG CHEN, 2005
Dissertation: *Hierarchical Traffic Grooming in Large-Scale WDM Networks*
Outstanding Teaching Assistant Award, 2004
11. JING TENG, 2004
Dissertation: *A Study of Optical Burst Switched Networks with the Jumpstart Just-In-Time Signaling Protocol*
10. LAURA E. JACKSON, 2003
Dissertation: *The Directional p-Median Problem with Applications to Traffic Quantization and Multi-processor Scheduling*
GAANN Fellow, 2000-2003
College of Engineering Nancy G. Pollock PhD Dissertation Award, 2004
9. YUFENG XIN, 2002
Dissertation: *Topology Design of Large-Scale Optical Networks*
8. LISONG XU, 2002
Dissertation: *Performance Analysis of Optical Burst Switched Networks*
NSF CAREER Award, 2007

7. RUDRA DUTTA, 2001
Dissertation: *Virtual Topology Design for Traffic Grooming in Optical WDM Networks*
6. A. HALIM ZAIM, 2001
Dissertation: *Computing Call Blocking Probabilities in LEO Satellite Networks*
5. YUHONG ZHU, 1999
Dissertation: *Computation of Blocking Probabilities in Wavelength Routing Networks*
4. ILYA BALDIN, 1998
Dissertation: *Dynamic Reconfiguration in Broadcast WDM Networks*
3. ZEYDY ORTIZ-LAUREANO, 1998
Dissertation: *Techniques to Support Multicast Traffic in Single-Hop WDM Optical Networks*
NSA Fellow, 1994-1998
2. M. WILLIAM (BILL) MCKINNON, 1997
Dissertation: *Performance Analysis of a Class of Photonic Interconnection Architectures*
1. SUPRIYA S. SHARMA, 1997
Dissertation: *Optimal Buffer Management for Shared Buffer ATM Switches*

Visiting Ph.D. Students

5. FENGXIAN TANG, 2019-2020 (Soochow University, China)
Research: *Optical Network Optimization*
4. WENZHE LI, 2017-2018 (Beijing University of Posts and Telecommunications, China)
Research: *Optical Networks on a Chip (ONoC)*
3. XIAOMIN LIU, 2011-2012 (Beihang University, China)
Research: *Ethernet Passive Optical Networks*
2. CHANG CAO, 2010-2011 (Beijing University of Posts and Telecommunications, China)
Research: *p-Cycle Protection in MPLS Networks*
1. ARUN VISWANATH, 2007-2008 (University of New South Wales, Australia)
Research: *Buffer Sizing in High-Speed Routers*

M.S. Students Supervised – Graduated

12. MANOJ VELLALA, 2008
Thesis: *Stack Composition for SILO Architecture*
11. SRIKRISHNA GIRISH KHARE, 2008
Thesis: *Linux Implementation of Tiered Service Fair Queueing (TSFQ) Scheduling Disciplines*
10. AJAY BABU AMUDALA BHASKER, 2006
Thesis: *Tiered-Service Fair Queueing (TSFQ): A Practical and Efficient Fair Queueing Algorithm*
9. NIKHIL BARADWAJ, 2005
Thesis: *Traffic Quantization and its Application to QoS Routing*
Graduate School Nancy G. Pollock MS Thesis Award, 2006

8. VIJAY IYER, 2002
Thesis: *A Simulation Study of Wavelength Assignment and Reservation Policies with Signaling Delays*
7. MRUGENDRA SINGHAI, 2002
Thesis: *Helios 2: An All-Optical Broadcast Local Area Network*
6. SUDHIN BENGARI, 2001
Thesis: *Differentiated Services Support for the Helios Optical WDM Testbed*
5. DHAVAL THAKER, 2001
Thesis: *Multicasting in a Partially Tunable Broadcast WDM Network*
4. JEFFREY J. STUCKEY, 1998
Thesis: *Worst-Case Cell Delay in an ATM Switch Using EDF Scheduling*
3. BRIAN K. HABERMAN, 1997
Thesis: *Cost, Delay, and Delay Variation Conscious Multicast Routing*
2. ILYA BALDIN, 1995
Thesis: *Multicast Routing With End-to-End Delay and Delay Variation Constraints*
1. VIJAY SIVARAMAN, 1995
Thesis: *TDM Schedules For Broadcast WDM Networks With Arbitrary Tuning Latencies*

II. Research and Scholarship

Books

3. ROUSKAS, G.N., RAMAMURTHY, B., SIVALINGAM, K.M. (editors). Next-Generation Internet Architectures and Protocols. Cambridge University Press, 2011.
2. ROUSKAS, G.N. Internet Tiered Services: Theory, Economics, and Quality of Service. Springer, 2009.
1. DUTTA, R., KAMAL, A., ROUSKAS, G.N. (editors). Traffic Grooming for Optical Networks: Foundations, Techniques, and Frontiers. Springer, 2008.

Book Chapters

10. SIMMONS, J., ROUSKAS, G.N., "Routing and Wavelength (Spectrum) Allocation." In Biswanath Mukherjee, Ioannis Tomkos, Massimo Tornatore, Peter Winzer, and Yongli Zhao (editors), *Springer Handbook of Optical Networks*, Springer, 2020.
9. FAYEZ, M., KATIB, I., ROUSKAS, G.N., FAHEEM, H.M., "Scheduling-Inspired Spectrum Assignment Algorithms for Mesh Elastic Optical Networks." In Aaron Striegel, Min Song and Kewei Sha (editors), *Advances in Computer Communications and Networks - From Green, Mobile, Pervasive Networking to Big Data Computing*, River Publishers, 2016.
8. ROUSKAS, G.N., DUTTA, R., "Hierarchical Traffic Grooming." In Rudra Dutta, Ahmed E. Kamal, and George N. Rouskas (editors), *Traffic Grooming for Optical Networks: Foundations, Techniques, and Frontiers*, Springer, 2008.
7. DUTTA, R., KAMAL, A.E., ROUSKAS, G.N., "Grooming Mechanisms in SONET/SDH and Next-Generation SONET/SDH." In Rudra Dutta, Ahmed E. Kamal, and George N. Rouskas (editors), *Traffic Grooming for Optical Networks: Foundations, Techniques, and Frontiers*, Springer, 2008.
6. DUTTA, R., KAMAL, A.E., ROUSKAS, G.N., "Introduction to Traffic Grooming." In Rudra Dutta, Ahmed E. Kamal, and George N. Rouskas (editors), *Traffic Grooming for Optical Networks: Foundations, Techniques, and Frontiers*, Springer, 2008.
5. ROUSKAS, G.N., XU, L., "Optical Packet Switching." In Krishna Sivalingam and Suresh Subramanian (editors), *Optical WDM Networks: Past Lessons and Path Ahead*, Kluwer, Norwell, Massachusetts, 2004.
4. ROUSKAS, G.N., "Optical Network Engineering." In Sudhir Dixit (editor), *IP over DWDM: Building the Next Generation Optical Internet*, John Wiley & Sons, Hoboken, New Jersey, pp. 299-327, 2003.
3. ROUSKAS, G.N., "Routing and Wavelength Assignment in Optical WDM Networks." In John Proakis (editor), *Wiley Encyclopedia of Telecommunications*, 2002.
2. ROUSKAS, G.N., DUTTA, R., "Design of Logical Topologies for Wavelength Routed Networks." In Krishna Sivalingam and Suresh Subramanian (editors), *Optical WDM Networks: Principles and Practice*, Kluwer, Norwell, Massachusetts, pp. 79-102, 2000.
1. ROUSKAS, G.N., "Scheduling Algorithms for Unicast, Multicast, and Broadcast." In Krishna Sivalingam and Suresh Subramanian (editors), *Optical WDM Networks: Principles and Practice*, Kluwer, Norwell, Massachusetts, pp. 171-188, 2000.

Journal Articles

88. ROUSKAS, G.N., "Symmetry-Free Routing and Spectrum Assignment: A Universal Algorithm Based on First-Fit [Invited]." *IEEE/Optica Journal of Optical Communications and Networking*, 2024 (in press).
87. LI, W., YUAN, G., WANG, Z., TAN, G., ZHANG, P., ROUSKAS, G.N., "Fast and Scalable All-Optical Network Architecture for Distributed Deep Learning." *IEEE/Optica Journal of Optical Communications and Networking*, vol. 16, no. 3, pp. 342-357, March 2024.
86. ROUSKAS, G.N., GUPTA, S., SHARMA, P. "Symmetry-Free Algorithm for Spectrum Allocation: Parallel Implementations and Evaluation [Invited]." *IEEE/Optica Journal of Optical Communications and Networking*, vol. 15, no. 10, pp. E40-E50, October 2023.
85. ROUSKAS, G.N. "A Symmetry-Free Spectrum Allocation Heuristic for Elastic Optical Networks." *Optical Switching and Networking*, vol. 49, May 2023.
84. ROUSKAS, G.N., BANDIKATLA, C., "Recursive First Fit: A Highly Parallel Optimal Solution to Spectrum Allocation." *IEEE/Optica Journal of Optical Communications and Networking*, vol. 14, no. 4, pp. 165-176, April 2022.
83. TANG, F., SHEN, G., ROUSKAS, G.N., "Crosstalk-Aware Shared Backup Path Protection in Multi-Core Fiber Elastic Optical Networks." *IEEE/OSA Journal of Lightwave Technology*, vol. 39, no. 10, pp. 3025-3036, May 15, 2021.
82. GAO, L., ROUSKAS, G.N., "Congestion Minimization for Service Chain Routing Problems with Path Length Considerations." *IEEE/ACM Transactions on Networking*, vol. 28, no. 6, pp. 2643-2656, December 2020.
81. TANG, F., LI, Y., SHEN, G., ROUSKAS, G.N., "Minimizing Inter-Core Crosstalk Jointly in Spatial, Frequency, and Time Domains for Scheduled Lightpath Demands in Multi-Core Fiber-based Elastic Optical Network." *IEEE/OSA Journal of Lightwave Technology*, vol. 38, no. 20, pp. 5695-5607, October 15, 2020.
80. FAYEZ, M., KATIB, I., ROUSKAS, G.N., GHARIB, T.F., KHALEED, H., FAHEEM, H.M., "Recursive Algorithm for Selecting Optimum Routing Tables to Solve Offline Routing and Spectrum Assignment Problem." *Ain Shams Engineering Journal*, vol. 11, no. 2, pp. 273-280, June 2020.
79. XIONG, Y., YAYA, Y., YE, Y., ROUSKAS, G.N., "A Machine Learning Approach to Mitigating Fragmentation and Crosstalk in Space Division Multiplexing Elastic Optical Networks." *Optical Fiber Technology*, vol. 50, pp. 99-107, July 2019.
78. LI, W., GUO, B., LI, X., ZHOU, Y., HUANG, S., ROUSKAS, G.N. "A Large-Scale Nesting Ring Multi-Chip Architecture for Manycore Processor Systems." *Optical Switching and Networking*, vol. 31, pp. 183-192, January 2019.
77. GAO, L., ROUSKAS, G.N., "A Spectral Clustering Approach to Network-Aware Virtual Request Partitioning." *Computer Networks*, vol. 139, pp. 70-80, July 2018.
76. BHAT, S., ROUSKAS, G.N., KATIB, I., "On Time Dependent Routing Algorithms for Open Marketplaces of Path Services with Support for In-Advance Path Reservation." *Computer Networks*, vol. 138, pp. 201-212, June 2018.
75. XIONG, Y., SHI, J., YAYA, Y., LV, Y., ROUSKAS, G.N., "Lightpath Management on SDN-Based Elastic Optical Networks with Power Consumption Considerations." *IEEE/OSA Journal of Lightwave Technology*, vol. 36, no. 9, pp. 1650-1660, May 2018.

74. XIONG, Y., LI, Y., ZHOU, B., WANG, R., ROUSKAS, G.N., "SDN Enabled Restoration with Triggered Precomputation in Elastic Optical Inter-Datacenter Networks." *IEEE/OSA Journal of Optical Communications and Networking*, vol. 10, no. 1, pp. 24-34, January 2018.
73. BHAT, S., UDECHUKWU, R., DUTTA, R., ROUSKAS, G.N., "Network Service Orchestration in Heterogeneous 5G Networks using an Open Marketplace." *IET Networks*, 2017.
72. TALEBI, S., ROUSKAS, G.N., "On Distance-Adaptive Routing and Spectrum Assignment in Mesh Elastic Optical Networks." *IEEE/OSA Journal of Optical Communications and Networking*, vol. 9, no. 5, pp. 456-465, May 2017.
71. TALEBI, S., KATIB, I., ROUSKAS, G.N., "Distance-Adaptive Routing and Spectrum Assignment in Rings." *IET Networks*, vol. 5, no. 3, pp. 64-70, May 2016.
70. TALEBI, S., BAMPIS, E., LUCARELLI, G., KATIB, I., ROUSKAS, G.N., "On Routing and Spectrum Assignment in Rings." *IEEE/OSA Journal of Lightwave Technology*, vol. 33, no. 1, pp. 151-160, January 1, 2015.
69. COULIBALY, ROUSKAS, G.N., ABD LATIF, M.S., RAZZAQUE, M.A., MANDALA, S., "QoS-Aware Ant-Based Route, Wavelength and Timeslot Assignment Algorithm for Optical Burst Switched Networks." *Transactions on Emerging Telecommunications Technologies*, 2015.
68. TALEBI, S., BAMPIS, E., LUCARELLI, G., KATIB, I., ROUSKAS, G.N., "Spectrum Assignment in Optical Networks: A Multiprocessor Scheduling Perspective." *IEEE/OSA Journal of Optical Communications and Networking*, vol. 6, no. 8, pp. 754-763, August 2014.
67. WANG, H., ROUSKAS, G.N., "Hierarchical Traffic Grooming: A Tutorial." *Computer Networks*, vol. 69, pp. 147-156, August 2014.
66. YAYAH, A. A., COULIBALY, Y., ISMAIL, A. S., ROUSKAS, G.N., "Hybrid Offset-Time and Burst Assembly Algorithm (H-OTBA) for Delay Sensitive Applications Over Optical Burst Switching Networks." *International Journal of Communication Systems*, 2014.
65. WOLF, T., GRIFFIOEN, J., CALVERT, K., DUTTA, R., ROUSKAS, G.N., BALDINE, I., NAGURNEY, A., "ChoiceNet: Toward an Economy Plane for the Internet." *ACM Computer Communications Review*, vol. 44, no. 3, pp. 58-65, July 2014.
64. TALEBI, S., ALAM, F., KATIB, I., KHAMIS, M., KHALIFAH, R., ROUSKAS, G.N., "Spectrum Management Techniques for Elastic Optical Networks: A Survey." *Optical Switching and Networking*, vol. 13, no. 1, pp. 34-48, July 2014.
63. LIU, X., ROUSKAS, G.N., HE, F., XIONG, H., "MPCP with Look-Ahead for WDM EPON." *IEEE/OSA Journal of Optical Communications and Networking*, vol. 6, no. 2, pp. 104-113, February 2014.
62. WANG, H., ROUSKAS, G.N., "Traffic Grooming in Optical Networks: Decomposition and Partial LP Relaxation." *IEEE/OSA Journal of Optical Communications and Networking*, vol. 5, no. 8, pp. 825-835, August 2013.
61. CAO, C., ROUSKAS, G.N., WANG, J., TANG, X., "Hybrid FRR/ p -Cycle Design for Link and Node Protection in MPLS Networks." *International Journal of Electronics and Communications*, vol. 67, no. 6, pp. 470-478, June 2013.
60. WANG, A., IYER, M., DUTTA, R., ROUSKAS, G.N., BALDINE, I., "Network Virtualization: Technologies, Perspectives, and Frontiers." *IEEE/OSA Journal of Lightwave Technology*, vol. 31, no. 4, pp. 523-537, February 15, 2013.

59. EL-BAWAB, T.S, ESFANDIARI, M., ROUSKAS, G.N., JAYASUMANA, A., EFFENBERGER, F., KAZOVSKY, L., KINCAID, M., MEDARD, M., FROST, V., BANIEWICZ, P., "Toward Specialized Undergraduate Telecommunication Engineering Education in the US." *IEEE Communications Magazine*, vol. 50, no. 9, pp. 3-4, September 2012.
58. VISWANATH, A., SIVARAMAN, V., ROUSKAS, G.N., "Anomalous Loss Performance for Mixed Real-Time and TCP Traffic in Routers with Very Small Buffers." *IEEE/ACM Transactions on Networking*, vol. 19, no. 4, pp. 933-946, August 2011.
57. YETGINER, E., ZEYU, L., ROUSKAS, G.N., "Fast Exact ILP Decompositions for Ring RWA." *IEEE/OSA Journal of Optical Communications and Networking*, vol. 3, no. 7, pp. 577-586, July 2011. **OSA Spotlight on Optics, September 2011.**
56. DWEKAT, Z., ROUSKAS, G.N., "A Practical Fair Queueing Scheduler: Simplification Through Quantization." *Computer Networks*, vol. 55, no. 10, pp. 2392-2406, July 2011.
55. CASTILLO, C., ROUSKAS, G.N., HARFOUSH, K., "Online Algorithms for Advance Resource Reservations." *Journal of Parallel and Distributed Computing*, vol. 71, no. 7, pp. 963-973, July 2011.
54. TOUCH, J., BALDINE, I., DAY, J., DUTTA, R., FINN, G.F., FORD, B., JORDAN, S., MASSEY, D., MATTA, A., PAPADOPOULOS, C., REIHER, P., ROUSKAS, G.N., "A Dynamic Recursive Unified Internet Design (DRUID)." *Computer Networks*, vol. 55, no. 4, pp. 919-935, 10 March 2011.
53. KARMOUS-EDWARDS, G., POLITO, S.G., JUKAN, A., ROUSKAS, G.N., "A New Framework for GLIF Interdomain Resource Reservation Architecture (GIRRA)." *Annals of Telecommunications*, vol. 65, no. 11-12, pp. 1000-1001, November-December 2010.
52. CHEN, B., DUTTA, R., ROUSKAS, G.N., "Clustering for Hierarchical Traffic Grooming in Large Scale Mesh WDM Networks." *IEEE/OSA Journal of Optical Communications and Networking*, vol. 2, no. 8, pp. 502-514, August 2010.
51. LV, Q., ROUSKAS, G.N., "An Economic Model for Pricing Tiered Network Services." *Annals of Telecommunications*, vol. 65, no. 3-4, pp. 147-161, April 2010.
50. ROUSKAS, G.N., BARADWAJ, N., "On Bandwidth Tiered Service." *IEEE/ACM Transactions on Networking*, vol. 17, no. 6, pp. 1780-1793, December 2009.
49. KARMOUS-EDWARDS, G., VISWANATH, A., REEVES, D.S., BATTESTILLI, L., VEGESNA, P., ROUSKAS, G.N. "Edge-Reconfigurable Optical Networks (ERONs): Rationale, Network Design, and Evaluation." *IEEE/OSA Journal of Lightwave Technology*, vol. 27, no. 12, pp. 1837-1845, June 15, 2009.
48. CHEN, B., ROUSKAS, G.N., DUTTA, R., "On Hierarchical Traffic Grooming in WDM Networks." *IEEE/ACM Transactions on Networking*, vol. 16, no. 6, pp. 1226-1238, October 2008.
47. YANG, L., ROUSKAS, G.N., "Optimal Wavelength Sharing Policies in OBS Networks Subject to QoS Constraints." *IEEE Journal on Selected Areas in Communications*, supplement on *Optical Communications & Networking*, vol. 25, no. 9, pp. 40-49, December 2007.
46. JACKSON, L.E., ROUSKAS, G.N., STALLMAN, M.F., "The Directional p -Median Problem with Applications to Traffic Quantization and Multiprocessor Scheduling." *European Journal of Operational Research*, vol. 179, no. 3, pp. 1097-1108, June 2007.
45. YANG, L., ROUSKAS, G.N., "Generalized Wavelength Sharing Policies for Absolute QoS Guarantees in OBS Networks." *IEEE Journal on Selected Areas in Communications*, supplement on *Optical Communications & Networking*, vol. 25, no. 4, pp. 93-104, April 2007.

44. YANG, L., ROUSKAS, G.N., "Adaptive Path Selection in Optical Burst Switched Networks." *IEEE/OSA Journal of Lightwave Technology*, vol. 24, no. 8, pp. 3002-3011, August 2006.
43. HUANG, S., DUTTA, R., ROUSKAS, G.N., "Traffic Grooming in Path, Star, and Tree Networks: Complexity, Bounds, and Algorithms." *IEEE Journal on Selected Areas in Communications*, vol. 24, no. 4, pp. 66-82, April 2006.
42. TENG, J., ROUSKAS, G.N., "A Traffic Engineering Approach to Path Selection in OBS Networks." *OSA Journal of Optical Networking*, vol. 4, no. 11, pp. 759-777, November 2005.
41. TENG, J., ROUSKAS, G.N., "Wavelength Selection in OBS Networks Using Traffic Engineering and Priority-Based Concepts." *IEEE Journal on Selected Areas in Communications*, vol. 23, no. 8, pp. 1658-1669, August 2005.
40. CHEN, B., ROUSKAS, G.N., DUTTA, R., "Traffic Grooming in WDM Ring Networks To Minimize the Maximum Electronic Port Cost." *Optical Switching and Networking*, vol. 1, no. 2, pp. 1-18, May 2005.
39. TENG, J., ROUSKAS, G.N., "A Detailed Analysis and Performance Comparison of Wavelength Reservation Schemes for Optical Burst Switched Networks." *Photonic Network Communications*, vol. 9, no. 3, pp. 311-335, May 2005.
38. XIN, Y., ROUSKAS, G.N., "Light-Tree Routing Under Optical Power Budget Constraints." *OSA Journal of Optical Networking*, vol. 3, no. 5, pp. 282-302, May 2004.
37. XIN, Y., ROUSKAS, G.N., "A Study of Path Protection in Large-Scale Optical Networks." *Photonic Network Communications*, vol. 7, no. 3, pp. 267-278, May 2004.
36. BALDINE, I., ROUSKAS, G.N., PERROS, H.G., STEVENSON, D., "Multicast and QoS in the **Jumpstart** Architecture for WDM Burst-Switched Networks." *Optical Networks*, vol. 4, no. 6, pp. 68-80, November/December 2003.
35. JACKSON, L.E., ROUSKAS, G.N., "Optimal Quantization of Periodic Task Requests on Multiple Identical Processors." *IEEE Transactions on Parallel and Distributed Systems*, vol. 14, no. 8, pp. 795-806, August 2003.
34. ZAIM, A.H., PERROS, H.G., ROUSKAS, G.N., "Performance Analysis of LEO Satellite Networks." *IEEE Transactions on Vehicular Technology*, vol. 52, no. 3, pp. 622-636, May 2003.
33. XIN, Y., ROUSKAS, G.N., PERROS, H.G., "On the Physical and Logical Topology Design of Large-Scale Optical Networks." *IEEE/OSA Journal of Lightwave Technology*, vol. 21, no. 4, pp. 904-915, April 2003.
32. ZAIM, A.H., BALDINE, I., CASSADA, M., ROUSKAS, G.N., PERROS, H.G., STEVENSON, D., "The **Jumpstart** Just-In-Time Signaling Protocol: A Formal Description Using Extended Finite State Machines." *Optical Engineering*, vol. 42, no. 2, pp. 568-585, February 2003.
31. XU, L., ROUSKAS, G.N., PERROS, H.G., "A Simulation Study of Optical Burst Switching and Access Protocols for WDM Ring Networks." *Computer Networks*, vol. 41, no. 2, pp. 143-160, January 2003.
30. ROUSKAS, G.N., "Optical Layer Multicast: Rationale, Building Blocks, and Challenges." *IEEE Network*, vol. 17, no. 1, pp. 60-65, January/February 2003.
29. XU, L., PERROS, H.G., ROUSKAS, G.N., "Access Protocols for Optical Burst-Switched Ring Networks." *Information Sciences*, vol. 149, no. 1-2, pp. 75-81, January 2003.
28. DUTTA, R., ROUSKAS, G.N., "A Survey of Traffic Grooming Techniques for Optical WDM Networks." *IEEE Network*, vol. 16, no. 6, pp. 46-56, November/December 2002.

27. JACKSON, L.E., ROUSKAS, G.N., "Deterministic Preemptive Scheduling of Real Time Tasks." *IEEE Computer*, vol. 35, no. 5, pp. 72-79, May 2002.
26. BAMPIS, E., ROUSKAS, G.N., "The Scheduling and Wavelength Assignment Problem in Optical WDM Networks." *IEEE/OSA Journal of Lightwave Technology*, vol. 20, no. 5, pp. 782-789, May 2002.
25. RHEE, I., BALAGURU, N., ROUSKAS, G.N., "MTCP: Scalable TCP-like Congestion Control for Reliable Multicast." *Computer Networks*, vol. 38, no. 5, pp. 553-575, April 2002.
24. BALDINE, I., ROUSKAS, G.N., PERROS, H.G., STEVENSON, D., "Jumpstart: A Just-In-Time Signaling Architecture for WDM Burst-Switched Networks." *IEEE Communications*, vol. 40, no. 2, pp. 82-89, February 2002.
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22. BAMPIS, E., ROUSKAS, G.N., "On Scheduling Problems with Applications to Packet-Switched Optical WDM Networks." In *Proceedings of OPTICOMM 2001*, pp. 163-172, August 19-24, Denver, Colorado.
21. DUTTA, R., ROUSKAS, G.N., "On Optimal Traffic Grooming in WDM Rings." In *Proceedings of ACM SIGMETRICS/PERFORMANCE 2001*, pp. 164-174, June 16-20, 2001, Cambridge, MA.
20. ZHU, Y., ROUSKAS, G.N., PERROS, H.G., "A Comparison of Allocation Policies in Wavelength Routing Networks." In *Proceedings of the SPIE conference on Terabit Optical Networking: Architecture, Control and Management Issues*, vol. 4123, pp. 64-72, November 6-7, 2000, Boston, MA.
19. RAMESH, S., ROUSKAS, G.N., PERROS, H.G., "Computing Blocking Probabilities in Multi-Class Wavelength Routing Networks." In *Proceedings of NETWORKING 2000*, LNCS 1815, pp. 176-188, May 14-19, 2000, Paris, France.
18. ZHU, Y., ROUSKAS, G.N., PERROS, H.G., "Blocking in Wavelength Routing Networks, Part II: Mesh Topologies." In *Proceedings of the 16th International Teletraffic Congress (ITC 16)*, pp. 1321-1330, June 7-11, 1999, Edinburgh, UK.
17. BALDINE, I., ROUSKAS, G.N., "Dynamic Reconfiguration Policies for Broadcast WDM Networks." In *Proceedings of IEEE INFOCOM '99*, pp. 313-320, March 21-25, 1999, New York.
16. ZHU, Y., ROUSKAS, G.N., PERROS, H.G., "Blocking in Wavelength Routing Networks, Part I: The Single Path Case." In *Proceedings of IEEE INFOCOM '99*, pp. 321-328, March 21-25, 1999, New York.

15. RHEE, I., BALAGURU, N., ROUSKAS, G.N., "MTCP: Scalable TCP-like Congestion Control for Reliable Multicast." In *Proceedings of IEEE INFOCOM '99*, pp. 1265-1273, March 21-25, 1999, New York.
14. BALDINE, I., ROUSKAS, G.N., "On the Design of Dynamic Reconfiguration Policies for Broadcast WDM Networks." In *Proceedings of the SPIE conference on All-Optical Networking: Architecture, Control and Management Issues*, vol. 3531, pp. 146-157, November 3-5, 1998, Boston, MA. **Best Paper Award.**
13. MCKINNON, M.W., ROUSKAS, G.N., PERROS, H.G., "Queueing-Based Analysis of Broadcast Optical Networks." In *Proceedings of ACM SIGMETRICS/PERFORMANCE '98*, pp. 121-130, June 22-26, 1998, Madison, Wisconsin.
12. BALDINE, I., ROUSKAS, G.N., "Dynamic Load Balancing in Broadcast WDM Networks with Tuning Latencies." In *Proceedings of IEEE INFOCOM '98*, pp. 78-85, March 29-April 1, 1998, San Francisco, California.
11. ORTIZ-LAUREANO, Z., ROUSKAS, G.N., PERROS, H.G., "Scheduling Combined Unicast and Multicast Traffic in Broadcast WDM Networks." In *Proceedings of the 1998 IFIP Conference on Performance of Information and Communications Systems (PICS '98)*, pp. 137-150, May 25-28, 1998, Lund, Sweden.
10. ORTIZ-LAUREANO, Z., ROUSKAS, G.N., PERROS, H.G., "Scheduling of Multicast Traffic in Tunable-Receiver WDM Networks with Non-Negligible Tuning Latencies." In *Proceedings of ACM SIGCOMM '97*, pp. 301-310, September 16-18, 1997, Cannes, France.
9. SIVARAMAN, V., ROUSKAS, G.N., "HiPeR- ℓ : A High Performance Reservation Protocol with ℓ ook-ahead for Broadcast WDM Networks." In *Proceedings of IEEE INFOCOM '97*, pp. 1272-1279, April 7-11, 1997, Kobe, Japan.
8. ROUSKAS, G.N., SIVARAMAN, V., "On the Design of Optimal TDM Schedules for Broadcast WDM Networks with Arbitrary Tuning Latencies." In *Proceedings of IEEE INFOCOM '96*, pp. 1217-1224, March 24-28, 1996, San Francisco, California.
7. ROUSKAS, G.N., BALDINE, I., "Multicast Routing with End-to-End Delay and Delay Variation Constraints." In *Proceedings of IEEE INFOCOM '96*, pp. 353-360, March 24-28, 1996, San Francisco, California.
6. ROUSKAS, G.N., AMMAR, M.H., "Minimizing Delay and Packet Loss in Single-Hop Lightwave WDM Networks Using TDM Schedules." In *Proceedings of IEEE ICC '95*, pp. 1267-1271, June 19-21, 1995, Seattle, Washington.
5. ROUSKAS, G.N., AMMAR, M.H., "Multi-Destination Communication Over Single-Hop Lightwave WDM Networks." In *Proceedings of IEEE INFOCOM '94*, pp. 1520-1527, June 14-16, 1994, Toronto, Ontario, Canada.
4. ROUSKAS, G.N., AMMAR, M.H., "Dynamic Reconfiguration in Multihop WDM Networks." In *Proceedings of ICCCN '94*, pp. 391-395, September 11-14, 1994, San Francisco, California.
3. ROUSKAS, G.N., AMMAR, M.H., "Analysis and Optimization of Transmission Schedules for Single-Hop WDM Networks." In *Proceedings of IEEE INFOCOM '93*, pp. 1342-1349, March 30 - April 1, 1993, San Francisco, California.
2. ROUSKAS, G.N., AMMAR, M.H., "On the Design of Dynamic Configuration Policies for Multihop WDM Networks." In *Proceedings of Photonics '93*, September 1993, Atlanta, GA.
1. AMMAR, M.H., ROUSKAS, G.N., "On the Design of Protocols for Collecting Responses over a Multiple-Access Channel." In *Proceedings of IEEE INFOCOM '91*, pp. 1490-1499, March 1991, Miami, Florida.

Conference Proceedings (invited)

18. ROUSKAS, G.N., BANDIKATLA, C., “Scalable Recursive First Fit: An Optimal Solution to the Spectrum Allocation Problem.” *Proceedings of the 25th Conference on Optical Network Design and Modeling (ONDM 2018)*, June 28-July 1, 2021, Gothenburg, Sweden.
17. BHAT, S., ROUSKAS, G.N., “Open Marketplace and Service Orchestration for Virtual Optical Networks.” *Proceedings of the 22nd Conference on Optical Network Design and Modeling (ONDM 2018)*, May 14-17, 2018, Dublin, Ireland.
16. TALEBI, S., FURQAN, A., KATIB, I., ROUSKAS, G.N., “Spectrum Assignment in Rings With Shortest Path Routing: Complexity and Approximation Algorithms.” *Proceedings of the International Conference on Computing, Networking and Communications (ICNC 2015)*, February 16-19, 2015, Anaheim, California.
15. DUTTA, R., ROUSKAS, G.N., BALDIN, I., “Traffic Grooming: Balancing Choice and Service in Optical Networks.” *Proceedings of Advanced Photonics for Communications*, July 13-17, 2014, San Diego, California.
14. DUTTA, R., ROUSKAS, G.N., BALDINE, I., “Converging Choice and Service in Future Commodity Optical Networks Using Traffic Grooming.” *Proceedings of 15th International Conference on Transparent Optical Networks (ICTON 2013)*, June 23-27, 2013, Cartagena, Spain.
13. ROUSKAS, G.N., BALDINE, I., CALVERT, K., DUTTA, R., GRIFFIOEN, J., NAGURNEY, A., WOLF, T., “ChoiceNet: Network Innovation Through Choice.” *Proceedings of the 17th Conference on Optical Network Design and Modeling (ONDM 2013)*, April 16-19, 2013, Brest, France.
12. WANG, H., LIU, Z., ROUSKAS, G.N., “Scalable Traffic Grooming in Optical Networks.” *Proceedings of Asia Communications and Photonics Conference (ACP 2012)*, November 7-10, 2012, Guangzhou, China.
11. DUTTA, R., BALDINE, I., WANG, A., IYER, M., ROUSKAS, G.N., “Architectural Support for Internet Evolution and Innovation.” *Proceedings of IEEE ANTS 2010*, December 16-18, 2010, Mumbai, India.
10. KARMOUS-EDWARDS, G., VISWANATH, A., REEVES, D.S., BATTISTILLI, L., VEGESNA, P., ROUSKAS, G.N. “ERONS: Dynamic Lightpath Networking via Overlay Control of Static Optical Connections.” *Proceedings of the 11th Conference on Optical Network Design and Modeling (ONDM 2009)*, February 18-20, 2009, Braunschweig, Germany.
9. ROUSKAS, G.N., DUTTA, R., BALDINE, I. “A New Internet Architecture to Enable Software Defined Optics and Evolving Optical Switching Models.” *Proceedings of the 8th Workshop on Optical Burst/Packet Switching (WOBS 2008)*, September 8, 2008, London, UK.
8. IYER, M., ROUSKAS, G.N., DUTTA, R., “Hierarchical Grooming in Multigranular Networks.” *Proceedings of the Advanced Networks and Telecommunications Systems Conference (ANTS 2007)*, December 17-18, Mumbai, India.
7. ROUSKAS, G.N., “Tiered Service in Packet-Switched Networks.” In *Proceedings of the IEEE Computer Communications Workshop*, February 5-7, 2006, Pittsburgh, PA.
6. ROUSKAS, G.N., “Multicast Routing Under Optical Layer Constraints.” In *Proceedings of the IEEE Computer Communications Workshop*, October 13-16, 2002, Santa Fe, New Mexico.
5. ROUSKAS, G.N., “Jumpstart: A Just-in-Time Signaling Architecture for WDM Burst-Switched Networks.” In *Proceedings of the IEEE LEOS Summer Topicals*, July 15-17, 2002, Mont Tremblant, Quebec, Canada.

4. XU, L., PERROS, H.G., ROUSKAS, G.N., “Access Protocols for Optical Burst-Switched Ring Networks.” In *Proceedings of the 6th Joint Conference on Information Sciences (JCIS 2002)*, pp. 1287-1290, March 8-13, 2002, RTP, North Carolina.
3. DUTTA, R., ROUSKAS, G.N., “Bounds on Traffic Grooming in Star and Tree Networks.” In *Proceedings of the 39th Allerton Conference on Communication, Control, and Computing*, October 3-5, Monticello, Illinois, 2001.
2. DUTTA, R., ROUSKAS, G.N., “Topology Design in WDM Rings to Minimize Electronic Routing: Efficient Computation of Tight Bounds.” In *Proceedings of the 38th Allerton Conference on Communication, Control, and Computing*, pp. 1284-1293, October 4-6, Monticello, Illinois, 2000.
1. ROUSKAS, G.N., “A Comparison of Allocation Policies in Wavelength Routing Networks.” In *Proceedings of the 37th Allerton Conference on Communication, Control, and Computing*, pp. 669-678, September 22-24, Monticello, Illinois, 1999.

Tutorials

4. ROUSKAS, G.N., “Tutorial on Network Virtualization.” Presented at the *OFC 2012* Conference, March 2012, Los Angeles, California.
3. ROUSKAS, G.N., “Tutorial on Traffic Grooming and Multigranular Switching in Optical WDM Networks.” Presented at the *NETWORKING 2004* Conference, May 9, 2004, Athens, Greece.
2. ROUSKAS, G.N., “Tutorial on Traffic Grooming and Multigranular Switching in Optical WDM Networks.” Presented at the *IEEE INFOCOM 2004* Conference, March 7, 2004, Hong Kong.
1. ROUSKAS, G.N., PERROS, H.G., “Tutorial on Optical Networks.” In E. Gregori *et al.*, (editors), *Advanced Lectures on Networking: Networking 2002 Tutorials*, Springer-Verlag LNCS 2497, pp. 155-193, 2002. Presented at the *NETWORKING 2002* Conference, May 19, 2002, Pisa, Italy.

Keynotes, Distinguished Lectures, and Panels

- Distinguished Lecture (virtual), Institute of Broadband Research and Innovation, Soochow University, China, October 2021.
- Distinguished Lecture (virtual), Istanbul Commerce University, Turkey, May 2021.
- Distinguished Lecture (virtual), Department of Computer and Information Sciences, Temple University, February 2021.
- Distinguished Lecture (virtual), School of Science, Beijing University of Posts and Telecommunications, Beijing, China, September 2020.
- Distinguished Lecture, CE Department, National Technical University of Athens, June 2019
- Distinguished Lecture, CSE Department, University at Buffalo, April 2019
- Panel on “Innovation Opportunities in Transport Networks from Network Analytics and Machine Learning.” OFC 2019, March 2019.
- Panel on “Future Directions for IoT.” IEEE MASS 2018, October 2018.
- Distinguished Lecture, East Carolina University, April 2017

- Distinguished Lecture, National Conference for Colleges of Computing (NC3), Jeddah, Saudi Arabia, February 2016
- Distinguished Lecture, King Abdulaziz University, Saudi Arabia, April 2015
- Distinguished Lecture, King Abdulaziz University, Saudi Arabia, February 2014
- Distinguished Lecture, King Abdulaziz University, Saudi Arabia, May 2013
- CS Distinguished Lecture, Iowa State University, April 2012
- Panel on “Future Internet: Do We Need Fundamentally New Designs?.” IEEE LANMAN workshop, Chapel Hill, NC, October 2011
- Keynote, ICIIS Conference, Kandy, Sri Lanka, August 2011
- IEEE Distinguished Lecture, University of Colombo, Sri Lanka, August 2011
- IEEE Distinguished Lecture, University of Moratuwa, Sri Lanka, August 2011
- IEEE Distinguished Lecture, The University of West Indies, Kingston, Jamaica, May 2011
- IEEE Distinguished Lecture, IEEE Communications Society Chapter, Orlando, FL, May 2011
- IEEE Distinguished Lecture, University of Alabama at Huntsville, Huntsville, AL, May 2011
- IEEE Distinguished Lecture, University of Alabama at Birmingham, Birmingham, AL, October 2010
- IEEE Distinguished Lecture, Verizon, Temple Terrace, FL, October 2010
- IEEE Distinguished Lecture, IEEE Communications Society Chapter, Orlando, FL, October 2010
- IEEE Distinguished Lecture, AT&T Research, Middletown, NJ, August 2010
- IEEE Distinguished Lecture, DRS Technologies, Gaithersburg, MD, August 2010
- IEEE Distinguished Lecture, IEEE Communications Society Chapter, Baltimore, MD, August 2010
- Keynote, INFORMS Telecom, Montreal, Canada, May 2010
- Panel, OFC Conference, San Diego, CA, March 2010
- Keynote, Euro-NGI Conference, Aveiro, Portugal, July 2009
- Distinguished Lecture, Universidad Tecnica Federico Santa Maria, Valparaiso, Chile, November 2008
- Distinguished Presentation, IEEE ICCCN Conference, Saint Thomas, August 2008
- Keynote, 5th Workshop on Optimization of Optical Networks, Montreal, Canada, May 2008
- Panel, ONDM Conference, Vilanova i la Geltru, Spain, March 2008
- Panel, BROADNETS conference, San Jose, CA, October 2006
- Distinguished Lecture, University of Evry, France, July 2006
- Panel, UNC Teaching and Learning with Technology (TLT) conference, Chapel Hill, NC, March 2006
- Distinguished Lecture, Carleton University, Canada, December 2005
- Distiguished Lecture, National Technical University of Athens, Greece, June 2004
- Distiguished Lecture, Athens Institute of Technology, Greece, June 2004
- Distiguished Lecture, University of Patras, Greece, May 2004

Funded Research Proposals and Grants

CNS Core:Small:On Parallelizing Optical Network Design Problems:Towards Network Optimization as a Service (PI: Rouskas)
National Science Foundation
Amount: \$440,000, October 2019-September 2022

Graduate Industrial Traineeships (PI: Rouskas)
SAS, Genworth, RENCI
Amount: \$460,000, June 2014-May 2020

Cisco Internship Program (PIs: Rouskas, Ning)
Cisco
Amount: \$160,000, May 2011-December 2012

NeTS: Large: Collaborative Research: ChoiceNet: Network Innovation Through Choice (NC State PIs: Rouskas, Dutta)
National Science Foundation
Amount: \$643,917 (total budget: \$2.732M), September 2011-December 2015

NeTS: Small: Computationally Scalable Aware Optical Network design (PI: Rouskas)
National Science Foundation
Amount: \$430,000, August 2011-July 2016

SURFnet GigaPort3 Research Plan (PIs: Rouskas, Karmous-Edwards)
SURFnet
Amount: \$280,000, July 2009-May 2012

GENI IMF: Integrated Measurement Framework and Tools for Cross Layer Experimentation (PIs: Dutta, Rouskas)
GENI Program Office
Amount: \$420,000, October 2009-September 2012

Edge Reconfigurable Optical Networks (ERONs) for High-Performance Applications (PIs: Rouskas, Reeves)
DARPA
Amount: \$250,000, July 2008- December 2009

CPATH-CB: Computing Across Curricula
National Science Foundation
Amount: \$275,000, July 2007-June 2010

An Intelligent Second-Life VCL-Based Computing Lab (PIs: Rouskas, Young)
IBM Faculty Award
\$30,000, July 2007

Lambda Scheduling for Grid Applications
NC State Center for Advanced Computing and Communication (CACC)
Amount: \$40,000, July 2007-June 2008

Learning with In-class Technology (LIT): The 15-Minute Learning Module Approach
NC State LITRE
Amount: \$8,000, June 2006-May 2007

Collaborative Research: NeTS-FIND: The SILO Architecture for Services Integration, controL, and Optimization for the Future Internet (PIs: Rouskas, Dutta)
National Science Foundation
Amount: \$228,000 (total budget: \$408,000), September 2006-May 2010

Integration of Network Survivability Concepts in an MS in Computer Networking Curriculum (PIs: Dutta, Rouskas)
 Microsoft Trustworthy Computing Curriculum
 Amount: \$50,000, January 2006-December 2006

Traffic Quantization: A Formal Approach To Scalability in Packet-Switched Networks
 National Science Foundation
 Amount: \$357,000, September 2004-August 2009

A Formal Approach to Traffic Grooming in Optical Networks with General Topologies (PIs: Rouskas, Dutta)
 National Science Foundation
 Amount: \$405,000, September 2003-August 2006

Transparent Optical Network Management and Routing with Just In Time Signaling (PIs: Rouskas, Perros)
 NSA LTS
 Amount: \$327,000 (total budget: \$1,350,000), January 2003-December 2004

Optical Network Lab Equipment
 MCNC-RDI
 Amount: \$640,000 (six Optera WDM switches with SONET and Gigabit Ethernet interfaces), August 2003

Engineering Online Student Access to Internet Lab
 NC State DELTA
 Amount: \$10,000, January 2003-June 2003

Access Protocols for Multicasting in an Optical Burst Switching Metro Ring (PIs: Perros, Rouskas)
 Alcatel
 Amount: \$45,000, January 2002-September 2003

Performance Analysis and Alternate Routing for Just In Time Optical Burst Switching Networks (PIs: Rouskas, Perros, Franzon)
 NSA LTS
 Amount: \$437,000 (total budget: \$1,500,000), January 2002-June 2003

Performance Evaluation of IPv6 Tunneling
 IBM Faculty Award (PIs: Devetsikiotis, Rouskas)
 Amount: \$40,000, July 2001

Research in Optical Burst Switching (PIs: Perros, Rouskas)
 NC State Center for Advanced Computing and Communications (CACC)
 Amount: \$43,000, July 2001-June 2002

Multicast Support for Just In Time Optical Burst Switching Networks (PIs: Rouskas, Perros)
 NSA LTS
 Amount: \$70,000 (total budget: \$500,000), October 2000-March 2001

Project: Optical Burst-Switched Ring Networks (PIs: Perros, Rouskas)
 NC State Center for Advanced Computing and Communications (CACC)
 Amount: \$35,000, July 2000-June 2001

Regional Testbed Optical Access Network for IP, Multicast, and Differentiated Services
 DARPA Next Generation Internet (NGI) Program
 Amount: \$214,000 (total budget: \$1,800,000), March 2000-March 2002

Networking Lab Equipment

HP U.S. University Equipment Grants

Amount: \$159,190 (50 HP Kayak workstations and 3 laser printers), December 1999

Internet Teaching Lab

CAIDA Internet Teaching Laboratories (ITL) Initiative

Amount: \$100,000 (4 Cisco Routers)i, October 1999

Performance Analysis of Wavelength Routed Wide Area Networks (PIs: Rouskas, Perros)

National Science Foundation

Amount: \$255,000, September 1998-August 2002

MTCP: TCP-like Congestion Control for Reliable Multicast (PIs: Rhee, Rouskas)

NC State Center for Advanced Computing and Communications (CACC)

Amount: \$78,000, July 1998-June 2000

Towards an All-Optical Network Infrastructure: Interconnection of Photonic WDM Broadcast-and-Select Local Area Networks

National Science Foundation (CAREER)

Amount: \$200,000, September 1997-August 2002

All-Optical Solutions to ATM Switching

NC State Center for Advanced Computing and Communications (CACC)

Amount: \$40,000, July 1995-June 1996

Multicasting for Multimedia Applications

NC State Faculty Development and Research Support

Amount: \$5,000, January 1995-June 1995

III. Leadership and Service

Society Memberships

FELLOW, Institute of Electrical and Electronics Engineers, Communications Society

MEMBER, Association for Computing Machinery, also Special Interest Group on Computer Communications

IEEE Leadership

CHAIR, IEEE Communications Society Distinguished Lecturer Selection Committee, 2016-2017

VICE CHAIR, IEEE Communications Society Technical and Educational Activities Council, 2016-2017

VICE CHAIR, IEEE Communications Society TCs Recertification Committee, 2016-2017

CHAIR, IEEE Communications Society Optical Networking Technical Committee (ONTC), 2016-2017

VICE CHAIR, IEEE Communications Society Optical Networking Technical Committee (ONTC), 2014-2015

SECRETARY, IEEE Communications Society Optical Networking Technical Committee (ONTC), 2012-2013

Technical Journal Leadership

FOUNDING EDITOR-IN-CHIEF, *IEEE Networking Letters*, 2018-2021

FOUNDING EDITOR-IN-CHIEF, *Optical Switching and Networking*, Elsevier, 2004-2017

Conference Committee Leadership

AWARDS CHAIR, *IEEE GLOBECOM 2023*, Kuala Lumpur, Malaysia, December 4-8, 2024.

EXECUTIVE CHAIR, *ICCCN 2023*, Honolulu, Hawaii, July 24-26, 2023.

MEMBER, STEERING COMMITTEE, *OFC Conference*, 2018-2023

EXECUTIVE CHAIR, *ICCCN 2022*, Honolulu, Hawaii (virtual conference), July 25-27, 2022.

TPC CO-CHAIR, *DRCN 2022*, Vilanova, Spain, March 28-31, 2022.

TPC CO-CHAIR, *IEEE MeditCom 2021*, Athens, Greece, September 7-10, 2021.

GENERAL CHAIR, *ICCCN 2021*, Athens, Greece (virtual conference), July 19-22, 2021.

CHAIR, STEERING COMMITTEE, *IEEE LANMAN*, 2015-2018

GENERAL CO-CHAIR, *IEEE MASS 2018*, Chengdu, China, October 9-12, 2018.

PROGRAM CO-CHAIR, *IEEE ICC 2017, Optical Networks and Systems (ONS) Symposium*, Paris, France, May 21-25, 2017.

GENERAL CO-CHAIR, *IEEE ICNP 2014*, Raleigh, NC, October 21-24, 2014.

Iarnach EX2009

GENERAL CHAIR, *ICCCN 2013*, Nassau, Bahamas, July 30-August 2, 2013.

PROGRAM CO-CHAIR, *ICCCN 2011*, Maui, Hawaii, August 1-4, 2011.

PROGRAM CO-CHAIR, *IEEE Globecom 2010, Optical Networks and Systems (ONS) Symposium*, Miami, FL, November 28-December 3, 2010.

PROGRAM CO-CHAIR, *ICCCN 2009, Internet Services, Systems and Applications (ISSA) Track*, San Francisco, CA, August 2-6, 2009.

GENERAL CO-CHAIR, *International Conference on Broadband Communications, Networks, and Systems (BROADNETS 2007)*, Raleigh, NC, September 10-13, 2007

GENERAL CO-CHAIR, *14th IEEE Workshop on Local and Metropolitan Area Networks (LANMAN 2005)*, Chania, Crete, Greece, September 18-21, 2005.

PROGRAM CO-CHAIR, *Workshop on Traffic Grooming (WTG 2004)*, October 29, 2004, San Jose, CA

TECHNICAL PROGRAM CHAIR, *13th IEEE Workshop on Local and Metropolitan Area Networks (LANMAN 2004)*, April 25-28, 2004, San Francisco, CA

TECHNICAL PROGRAM CO-CHAIR, *IFIP Networking 2004*, May 9-14, 2004, Athens, Greece

Editorial and Review Work for Technical Journals and Publishers

ASSOCIATE EDITOR, *IEEE/OSA Journal of Communications and Networking*, 2010-2012

CO-GUEST EDITOR, *JCM Journal of Communications*, Special Issue on the “Advances in Communications and Networking,” vol. 6, no. 9, December 2011.

ASSOCIATE EDITOR, *IEEE/ACM Transactions on Networking*, 2000-2004

ASSOCIATE EDITOR, *Computer Networks*, 2001-2004

ASSOCIATE EDITOR, *Optical Networks*, 2000-2004

CO-GUEST EDITOR, *IEEE Journal on Selected Areas in Communications*, Special Issue on “Protocols for Next Generation Optical WDM Networks,” vol. 18, no. 10, October 2000.

REVIEWER, Morgan Kaufmann, John Wiley and Sons, Cambridge University Press, Springer, IEEE Transactions on Networking, IEEE Transactions on Computers, IEEE Transactions on Communications, IEEE/OSA Journal of Lightwave Technology, IEEE/OSA Journal of Optical Communications and Networking, IEEE Journal on Selected Areas in Communications, Computer Networks Journal, International Journal of Performance Evaluation, European Transactions on Telecommunications, Photonic Network Communications Journal, IEEE Computer Magazine, IEEE Communications Magazine, IEEE Network Magazine, and numerous conferences

PROPOSAL REVIEW PANELIST, National Science Foundation – on numerous occasions

Conference Program Committees

IEEE GLOBECOM: 2003-2023

IEEE ICC: 2003-2023

IEEE LANMAN: 2007-2023

Iarnach EX2009

IEEE INFOCOM: 2007-2013, 2004, 1996-1998
ONDM: 2014-2023, 2009, 2005
IFIP NETWORKING: 2023, 2019, 2005-2012
OSA NETWORKS: 2017-2019
OFC/NFOEC: 2008-2010
Euro NGI: 2008-2011
EuCNC: 2015-2017
ACM CoNEXT Cloud Assisted Networking: 2016-2017
TEMU: 2012-2016
Networks: 2008-2016
DRCN: 2019-2021, 2015, 2011
NOC: 2014-2015
IEEE NFV-SDN: 2015
ITC: 2013
IEEE ICNP: 2013, 2008, 1997
ICCCN: 2012, 2006
ICNC: 2020, 2012
IEEE ANTS: 2011, 2009, 2008
RNDM: 2010-2011
ACP: 2010
ReArch Workshop: 2009-2010
INFORMS Telecom: 2010
WOBS: 2009, 2003-2005
BROADNETS: 2004-2006
IEEE HPSR Workshop: 2019, 2003-2005
OPTiCOMM: 2000-2003
SPIE Conference on All-Optical Networking: 1998-1999

NC State: University Committees

MEMBER, Administrative Board of the Graduate School (ABGS), 2016-2018
JUDGE, Graduate Student Research Symposium, 2018, 2014
MEMBER, Microsoft Research Faculty Fellowship Review Committee, 2012-2013
MEMBER, DELTA IDEA grant review committee, 2004-2005
MEMBER, DELTA Advisory Committee, 2003-2005
CHAIR, DELTA Subcommittee on Intellectual Property, 2003-2005
MEMBER, Alumni Outstanding Research Awards Selection Committee, 2004

NC State: College of Engineering Committees

MEMBER, University Faculty Scholar Selection Committee, 2012-2014
MEMBER, ALCOA Awards Committee, 2012-2013
MEMBER, College Reappointment, Promotion, and Tenure (RPT) Committee, 2008-2011
textscMember, College Research Committee, 2007-2008
MEMBER, CSC Head Search Committee, 2004-2006
MEMBER, Engineering Online Advisory Committee, 2003-2005
MEMBER, CSC Review Survey Committee, 1998-1999
MEMBER, Admissions Standards Committee, MS in Computer Networking, 1998-1999

NC State: Department of Computer Science Committees

CHAIR, Networking faculty search committee, 2021-2022
MEMBER, Reappointment, Promotion, and Tenure (RPT) Committee, 2017-present
CHAIR, Strategic Planning Committee, 2009-2012
MEMBER, Graduate Student Admissions Committee, 2011-2012
MEMBER, Awards Committee, 2009-2012
MEMBER, Faculty Recruiting Committee, 2008-2009
COURSE COORDINATOR, CSC 316 (Data Structures), 2005-2017
MEMBER, Computing Infrastructure Committee, 2006-2010
CHAIR, Minority Recruiting Committee, 2006-2007
MEMBER, Committee for External Evaluation Visit, Fall 2004
MEMBER, Strategic Planning Committee, 2003-2004
MEMBER, Research Productivity Committee, 2003-2004

MEMBER, Strategic Planning Committee, 2002-2005

CHAIR, Faculty Recruiting Committee, 2001-2002

CHAIR, Faculty Recruiting Committee, 2000-2001

PEER EVALUATOR, 23 teaching evaluations, 1999-present

MEMBER, Graduate Student Admissions Committee, 1996-1998

MEMBER, PhD Qualifying Exam Committee, 1994-1996

NC State: Operations Research and ECE Committees

MEMBER, OR Graduate Student Admissions Committee, 2012-2013, 2005-2007

MEMBER, ECE Faculty Recruiting Committee, 1999-2000

Other National and International Activities

MEMBER, International Advisory Committee, Scuola Superiore Sant'Anna, Pisa, Italy, 2013-2014

MEMBER, Committee of Visitors (CoV), DoE Networking Research Program, 2011

MEMBER, Best Paper Award Committees

IEEE ICC, 2021

IEEE/OSA Journal of Optical Communications and Networking, Charles Kao Award, 2015-2017

IEEE ICC, 2016

ICNC, 2015

ACP, 2012, 2009

IEEE INFOCOM, 2011

IEEE ANTS, 2010

IEEE FELLOW NOMINATOR, four cases, 2018-present

IEEE FELLOW REFERENCE, 19 cases, 2012-present

EXTERNAL REVIEWER for the promotion to Full Professor, 26 cases, 2004-present

EXTERNAL REVIEWER for the promotion to Associate Professor with tenure, 29 cases, 2000-present