

SELECTION OF ONE PROFESSOR (LEVEL 2), FOR ACADEMIC RECRUITMENT FIELD 09/F2 "TELECOMMUNICATION" AT THE INSTITUTE OF COMMUNICATION, INFORMATION AND PERCEPTION TECHNOLOGIES (TECIP) - ACADEMIC CLASS OF EXPERIMENTAL AND APPLIED SCIENCES, RESERVED, PURSUANT TO ART. 24, SUBSECTION 6, OF ITALIAN LAW 240/2010, FOR RESEARCHERS EMPLOYED AT THE SCHOOL, ISSUED BY RECTOR DECREE. NO. 614 DATED 04/10/2021.

MINUTES OF THE SECOND MEETING

The Review Committee for the selection of one professor (level 2), nominated by decree No. 669 dated 20/10/2021 by the Rector, that consists of:

- José Azaña, Full Professor Institute National de la Recherche Scientifique - Énergie Matériaux - Télécommunications Research Centre (INRS-EMT);
- Prof. Nicola Blefari Melazzi, Full Professor of the Academic Recruitment Field 09/F2 "Telecommunication" at the University of Roma Tor Vergata as expert designated by the TeCIP Institute;
- Prof. José Capmany, Full Professor at the Universitat Politècnica de València;
- Prof. Andrea de Guttry, Full Professor of the Academic Recruitment Field 12/E1 "International Law" at the Scuola Superiore Sant'Anna, member of the Recruitment Committee;
- Prof. Maria Greco, Full Professor of the Academic Recruitment Field 09/F2 "Telecommunication" at the University of Pisa;
- Prof. Ilenia Tinnirello, Full Professor of the Academic Recruitment Field 09/F2 "Telecommunication" at the University of Palermo.

The Committee convened for the second time, via teleconference, on November, 15, 2021, at 4 p.m. from the following locations:

Prof. Azaña located in Montreal, connected via teleconference (email: Jose.Azana@inrs.ca)

Prof. Blefari Melazzi located in Rome, connected via teleconference (email: blefari@uniroma2.it)

Prof. Capmany located in Valencia, connected via teleconference (email: jcapmany@iteam.upv.es)

Prof. de Guttry located in Pisa, connected via teleconference (email: Andrea.deGuttry@santannapisa.it)

Prof. Greco located in Pisa, connected via teleconference (email: blefari@uniroma2.it)

Prof. Tinnirello located in Palermo, connected via teleconference (email: ilenia.tinnirello@unipa.it).

The President, having ascertained the presence of all the members, opened the session and verified that the assessment criteria defined in the previous session had been published on the website of the School.

The members of the Committee state that the Personnel Office of the School has provided them with an electronic copy of the documentation submitted by the applicants containing: application, curriculum, publications with a declaration in lieu of an affidavit certifying compliance with the original, letters of recommendation, and a list of all the documents accompanying the application.

The members of the Committee state that they have examined the publications, curriculum and teaching activities of the candidates and made their individual assessments, which are reported in Annex 1 of these minutes.

The Committee then examines the publications, curriculum and teaching activities of the candidates, confronts their individual assessments and reviews the collegiate assessment annexes sub 2 attached to the minutes of which they are an integral part.

Then after a full discussion, on the basis of a unanimous vote, the Committee declares that the winning candidate is: Antonella Bogoni.

Prof. de Guttry testifies that the evaluation of the candidates, the presentation of the individual assessments, the ensuing discussion and, in general, the whole procedure occurred in full compliance with the rules established by Scuola Sant'Anna and its recruitment committee.

The Committee then draws up a report summarizing the work carried out.

Given the conclusion of the The Review Committee for the selection of one Full professors for the Academic Recruitment Field "09/F2 Telecommunication" at the Institute of Communication, Information and Perception Technologies (TeCIP) of the Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna di Pisa, reserved for associate professors and researchers employed at the School to be selected pursuant to art. 24, subsection 6 of the Italian law 240/2010, the President declared the work closed.

These minutes, drawn up and signed by the President and the attached declarations of the Committee's members will be sent to the Personnel Office in order for these proceedings to be verified, with a decree by the Rector.

The session closed at 17:50

Read, approved and signed,

The President

Nicola Blefari Melazzi



Individual Assessments (by J. Azaña)

Teaching

BOGONI: Her university professor activity has been mainly focused on teaching of graduate-level courses (Master, PhD) in Sant'Anna school, and in training graduate students, including supervision of 36 master students and 18 PhD students. (Qualified for Full Professor in Italy since 2017). EXCELLENT

VALCARENGHI: Strongest asset of the candidate. He has taught many relevant courses at the SSSA over the years, both at the graduate and undergraduate levels. His involvement in the development of the school teaching curriculum is remarkable. He is greatly appreciated by his students as demonstrated through the provided information on the course evaluation scores. His contribution on graduate student training is very strong as well, including supervision of 10 PhD students and 11 Master student. EXCELLENT +

Publications

BOGONI: Impressive publication track record in top-tier international journals, including 177 publications in the top journals in the domain (84% Q1) and many invited contributions (1 Tutorial, 21 invited papers). She has 55 patents. Some of her publications are widely considered to be seminal work in the field (such as that on pertaining the microwave photonic radars) and they have had an outstanding influence in the relevant disciplines. EXCELLENT

VALCARENGHI: Excellent publication track record for the domain, including 58 publications in peer-review technical journals (level of the journals in the domain not mentioned), but does not seem to have many invited papers. The latest may be an indication of a more modest impact in his research field. He has 5 patents. GOOD

Research activities

BOGONI: She has conducted work in a variety of research fronts, including microwave photonics and optical telecommunication systems. She has been very successful in attracting a large amount of funding to support her research (estimated > 12.5 M Euros, including 48 national and international research projects). The impact of this work is very significant and easily measurable, e.g., in terms of total number of citations, h-index etc. at the level of many well-established and highly reputed full professors across the world. Additionally, her work has a clear practical interest, as demonstrated by her many industrial partners (which has also played a central role in her capability to attract research funding). Her stature in the field is also clearly demonstrated by her participation as editor in some of the best journals in her field (e.g., Opt Lett) and in many special issues, as well as a TPC member and in the organization (e.g., chair) of some of the most reputed international meetings in her discipline (MWP, ECOC etc.) EXCELLENT +

VALCARENGHI: His research activities are focused on optical network design, analysis and optimization, mainly at the theoretical and algorithmic level. He has led many national and international research projects, funded through competitive research funding programs (~2 M Euros). He has participated in many projects funded by private contracts though these have been led by other colleagues (Castoldi). There is an important international recognition (Best paper awards, invited papers in international meetings, TPC member/chair of top conferences) though the impact of his work at an international scale seems more limited (citation records, identified seminal papers etc.) VERY GOOD

Institutional activities

BOGONI: Many direction and leadership positions in the research structure of the Sant'Anna School (SSSA) over the years (see positions in page 2, 11 and 12 of her CV). She has played a critical role in defining the research vision of her institution, with a particularly strong influence in the CNIT activities. EXCELLENT

VALCARENGHI: Impressive list of services for the university (SSSA), in terms of coordinator of courses, workshops and diplomas (page 16 of his CV), graduation committees (page 17) and recruiting committee. His involvement in direction/leadership positions within the research structure of his institution is more limited. VERY GOOD

Individual Assessment by Nicola Blefari Melazzi: Antonella Bogoni

The candidate Antonella Bogoni has taught many courses, including master and PhD courses. She has been the supervisor of 18 PhD students and 17 Research Assistants and PhD External examiner for 11 theses. The overall evaluation for her teaching activity is very good.

Her publications appeared on top tier international journals and several of them can be considered as reference work for the discipline. In particular, she published her work about 180 times in international journals, reaching high values of the main bibliometric indicators and being invited several times to contribute to books, international journals and conferences. She is the co-inventor of 55 international patents. She also played the role of editorial board of high-ranked journals, of organizers of special sessions and workshops at high-profile international events and of general chair and co-chair of reference conferences in the field. The overall evaluation for her publications is excellent.

Prof Antonella Bogoni has carried out important and extensive studies on four main areas of research: Microwave photonics; Integrated photonics; Optical Time Division Multiplexing systems; All-optical photonics processing. She reached an international recognition in her field of work with a wide-spanning network of cooperation. She has been responsible for tens of projects of national/international and global importance, succeeding in raising a large quantity of funds. Among them she played the role of Principal Investigator/Consortium coordinator in 27 research grants and, very significantly, obtained 3 ERC grants. She coordinated large teams of researchers. She obtained several national and international awards and recognitions, including 6 Best papers, an IEEE Charles Kao Award, a Fulbright advanced research scholarship, the Sant'Anna School award for the best scientific production among associate professors. She has also been an evaluator of several project proposals, notably for ERC grants. The overall evaluation for her research activity is excellent/outstanding.

She has participated in several initiatives in academic and non-academic contexts, giving a significant contribution to the Sant'Anna School third mission. The overall evaluation for her institutional activity is excellent.

Summing up, I believe that Antonella Bogoni is fully qualified to be appointed full professor by the Scuola Superiore Sant'Anna.

Individual Assessment by Nicola Blefari Melazzi: Luca Valcarenghi

The candidate Luca Valcarenghi has taught many courses, including bachelor, master and PhD courses. He has been the supervisor of 10 PhD students, 2 post-docs and a research fellow and played the role of external examiner for several theses. The overall evaluation for his teaching activity is very good.

His publications appeared on top tier international journals. In particular, he published his work in 8 book chapters and 58 international journals, reaching high values of the main bibliometric indicators and being invited to contribute to international journals and conferences. He is the co-inventor of 5 patents. He also played the role of editorial board member of high-ranked journals, of organizers of special sessions and workshops at high-profile international events and of general co-chair and TPC chair and co-chair of reference conferences in the field. The overall evaluation for his publications is very good.

Prof Luca Valcarenghi has carried out important and extensive studies on several areas of research: optical networks design, analysis, and optimization; communications networks reliability; energy efficiency in communications networks; optical access networks; 5G technologies and beyond; experiential networked intelligence; zero touch network and service management with a wide-spanning network of cooperation. He participated to a large number of national and international projects, succeeding in raising a significant quantity of funds. Among them he played the role of Principal Investigator/Consortium coordinator in 11 research grants. He obtained several national and international awards and recognitions, including 3 Best papers (two of them student best paper) an IEEE Charles Kao Award and several fellowships through competitive calls. He has also been an evaluator of several project proposal. The overall evaluation for his research activity is very good.

He contributed to several services for his university, including being the coordinator of a PhD course. The overall evaluation for his institutional activity is excellent.

Summing up, I believe that Luca Valcarenghi is qualified to be appointed full professor by the Scuola Superiore Sant'Anna

Individual Assessment for Dr. Antonella Bogoni

Teaching activities: The candidate has carried a continuous teaching activity since 2003. In particular, she has held teaching at the Master's level in SSSA since 2005 in Photonic switching and digital RF-Photonics. She has supervised 36 MSc Theses since 2000 and 18 Ph.D. Theses since 2004. These figures show excellent and unstopped activity.

Research activities:

Publications: 9 book chapters, 177 journal papers, and over 400 conference contributions. Journal papers include one tutorial and 21 invited manuscripts, predominantly in top-tier journals. I want to highlight the article published in Nature on the first-ever photonics-based radar (this paper has over 700 citations). Overall figures are outstanding.

Impact: The candidate is one of the world-leading researchers in the field of RF-photonics and especially in the area of photonic Radars she is probably the top researcher in the world. According to the recently published study conducted by Stanford University's Prof John PA Ioannidis, she is included in the list of the world's top 2% scientists most impactful researchers. Her research indicators ($h=35$ and over 5500 citations) are also over the average of other professors of her age and experience working at European universities.

Project and research leadership: She has been Principal Investigator in 28 projects since 2004. Remarkably 3 of them were funded by the European Research Council ERC and two by the EU H2020 program. Overall, she has raised over 12 M€ in funding for SSSA. Another remarkable aspect of her career is technology transfer with the co-authorship of 55 patents.

Editorial experience: the candidate has carried an intense and continuous role in several top-tier journals since 2011. She has been topical editor of the prestigious OSA Optics Letters and co-guest Editor of four IEEE Journal of Lightwave technology special issues.

Conference organization roles: her activity has been very intense. I would highlight that she is an Italian representative at the European Management Committee of ECOC (European Conference on Optical Communication). She was TPC Chairperson at ECOC 2018 held in Rome and will be the General Chair of the IEEE Topical Meeting on Microwave Photonics. She has organized and co-chaired as a TPC member in countless workshops and technical conferences in photonic switching and RF-Photonics.

Institutional Activities:

She has been intensively involved in activities leading to significant value addition and contribution to Santa Anna School. In particular, she has undertaken a leading role in creating the INPHOTEC foundry at SSSA and is the current Director of the National Laboratory of Photonic Networks and Technologies (PNTLab). She has also been a Member of the "emerging Technology" Ph.D. committee at SSSA and a Member of the SSSA committee to evaluate the off-site student stays in the engineering sector.

Summary

Summing up, I believe that Dr. Antonella Bogoni is outstandingly qualified to be appointed full professor by the Scuola Superiore Sant'Anna

Individual Graded Assessment

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Teaching: EXCELLENT

Publications: EXCELLENT+

Research Activities: EXCELLENT+

Institutional Activities: EXCELLENT

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Individual Assessment for Dr. Luca Valcarenghi

Teaching activities: The candidate has intensive and continuous lecturing activities starting in 2002 and covering both bachelor (up till 2007) and graduate courses in disciplines related to optical networking and intelligent grid. He has completed the supervision of 7 P.D. students and 11 master students, and five undergraduate students at SSSA.

Research activities:

Publications: 9 book chapters, 58 journal papers, and over 186 conference contributions. Journal papers include many contributions to IEEE Journal of Lightwave Technology and other leading journals in optical networks. The overall productivity is very good.

Impact: The candidate is an internationally recognized researcher in optical networking and grid computing. His indicators (h=27 and 3386 citations) are good.

Project and research leadership: He has been SSSA Principal investigator in two H2020 EU-funded projects and one FP7. As a researcher, he has participated in many international and national projects. It is noteworthy his involvement in 16 contracts with the industry. He has co-authored five patents

Editorial experience: the candidate has carried an intense and continuous role in several journals related to optical networks since 2000. To be highlighted his role as a technical editor in the IEEE Communications Magazine and his participation as Editor in the Elsevier Optical switching and networking

Conference organization roles: He has been involved in organizing countless workshops, conferences, and symposia on optical networks since 2000. Many of them are managed by IEEE.

Institutional Activities:

He has been very intensively involved in mentoring and supervision activities at Santa Anna School. He has also participated in countless graduation and recruitment committees

Summary

Summing up, I believe that Dr. Luca Valcarenghi is very well qualified to be appointed full professor by the Scuola Superiore Sant'Anna

Individual Graded Assessment

Teaching: EXCELLENT

Publications: VERY GOOD

Research Activities: VERY GOOD

Institutional Activities: EXCELLENT

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Individual Assessments

Prof. Antonella BOGONI

The candidate has taught several courses, including PhD courses, since 2003. In particular, since 2016, she teaches regularly part of the course “Photonics Laboratory for Telecommunications” for the Master students in Engineering of Telecommunications at UNIPI.

She has been supervisor of a large number of master and PhD theses. Overall, the evaluation of the teaching activity is **very good**.

Her publications appeared on top tier international journals and international conferences with a notable impact on the scientific community, as proved by the many citations. She has been recognized also several best paper awards in International Conferences.

It is worth noting that she has been guest editor of many special issues over the last 8 years and, since 2014, editorial board member of Frontiers of Optoelectronics. The overall evaluation of publications and editorial activities of prof. Bogoni is **excellent**.

Prof. Bogoni has carried out important and extensive studies on four main areas of research: microwave photonics, integrated photonics, Optical Time Division Multiplexing systems, all-optical photonics processing. She has been responsible of and participant in many national and international projects (AFRL-USA, ONR-USA, H2020-EU, ESA, ASI, ERC), succeeding in raising and managing a large quantity of funds. She’s also co-owner of 55 patents. Overall, the evaluation of her research activity is **excellent**.

Prof. Bogoni collaborated within institutional projects with OHB, IBM, Huawei, Thales and with other SMEs. She was co-founder of Photrix, a start-up company, of which she was President and CEO from 2007 to 2011. The evaluation of the institutional activity and third mission is **good**.

Prof. Luca VALCARENGHI

The candidate has taught many courses, including PhD courses, in particular for the Master Erasmus Mundus PIXNET and in the Master of Computer Science and Networking.

He has supervised and mentored a large number of undergraduate, master and PhD students since 2005. Overall, the evaluation of the teaching activity is **very good**.

His publications appeared on top tier international journals and international conferences with a good impact on the scientific community, as proved by the several citations. He has been recognized also some best paper awards in International Conferences.

It is worth noting that he is editorial board member of one IEEE journal and 2 Elsevier journals. Overall, the evaluation of the research activity is **very good**.

Prof. Valcarengi has carried out extensive research activity on communications networks. He has been responsible of and participant in many national and international projects (H2020-EU, PF7-EU, MIUR etc.), succeeding in raising and managing a good amount of funds. And he has been involved in the organizing committees of many international conferences and workshops also in leading roles. The overall evaluation of publications and editorial activities of prof. Valcarengi is **very good**.

Since 2018 he is director of the PhD program in “emerging digital technologies”, Scuola Sant’Anna, and he has also played the role of vice-president of Master in Computer Science and Networking from 2016 to 2019. Prof. Valcarengi collaborated within some institutional projects with TIM ad RFI and other SMEs.

The evaluation of the institutional activity and third mission is **very good**

Individual Assessments

The candidate Antonella Bogoni has taught several courses at SSSA for both PhD and master students, on the themes of photonics (microwave photonics, photonics in switching and photonics for telecommunications). She also taught courses for master students at the Universities of Pisa and Genoa, including the recent courses on Opto-electronic systems and Advanced complex systems. She has carried out an intense tutoring activity, being the supervisor of 36 master students and 18 PhD students. She has been involved as external examiner for 11 PhD final exams in many Italian and foreign Universities. The overall evaluation on teaching activities is very good.

Antonella Bogoni's publications appeared in top tier international journals, with an excellent relevance. In all of them, it is evident the decisive contribution of the candidate and her role as main author or coordinator of the work. The research topics are focused on photonics, and span across different technological aspects (from components to complex systems). The number of citations achieved by the publications demonstrate the excellent impact of Bogoni's results, which are often a reference for the research activities in the field. She also worked in the editorial board of Q1 journals and served as guest editor in several Q1 and Q2 special issues. The overall evaluation on publications is excellent.

Antonella Bogoni's research activities have been focused on photonics technologies and applications, with particular emphasis on microwave photonics and integrated photonics technologies. Her pioneering work on a photonic-based digital radar, funded by an ERC grant in 2009 and followed by two other ERC grants for the implementation of two proof-of-concepts, has been widely recognized in the scientific community as a very innovative and inspiring work. Bogoni also worked on optical communications and all-optical processing, with some collaborations with the University of Southern California, designing innovative systems for OTDM signal regeneration and optical logic gates. She has been co-inventor of 55 patents and demonstrated excellent results in technology transfer and project funding (playing the role of coordinator in two European projects, apart from the already mentioned ERC grants, and the role of research unit coordinator in 13 other projects), as well as in coordinating a research team. The overall evaluation is excellent+ (outstanding).

She has been the responsible of the Photonic Networks National Laboratory of CNIT and responsible for SSSA in several scientific and industrial contracts, with a significant contribution to the third mission of her institution. The evaluation on institutional activities is very good.

The candidate Luca Valcarengi has taught several courses at SSSA for both PhD and master students, on network simulation, network management, traffic engineering, optical networks, with good evaluation scores of his teaching. He also taught a few modules for bachelor students. He supervised bachelor and master students, as well as 10 PhD students at SSSA. He has been involved as external examiner or reviewer for several PhD thesis discussed in other Italian and foreign Universities. The overall evaluation of the teaching activities is very good.

Luca Valcarengi publications appeared in top tier international journals, including both technical contributions and dissemination papers. The selected publications well represent the main topics of his research activities, including optical transport networks, fiber-wireless integrated access networks, energy savings in optical networks and reconfigurable networks. In most cases, the contribution of the candidate is evident and the publications have good citation scores. Valcarengi serves as editor for some important journals and one magazine of the field. The overall evaluation on publications is very good.

Luca Valcarengi research activities covered different topics, from optical network design and optimization, to energy efficiency in communication networks, grid computing and 5G technologies. His contributions on optical transport networks for emerging cellular systems, wired-wireless integration and 5G function acceleration on programmable hardware are well recognized in the scientific community. He had the role of research unit coordinator for SSSA in some European projects, together with other role of responsibilities in national projects and industrial contracts. He is co-author of 5 patents. The overall evaluation on research activities is excellent.

Valcarengi served as Coordinator for the PhD Program in Emerging Digital Technologies at SSSA, as Vice-coordinator for the Master Program in Computer Science and Networking, member of the "Collegio di Disciplina", Deputy Area Leader of the TeCIP Institute, and Representative of the Assistant Professors in the Academic Class of Experimental Sciences at the same SSSA. The overall evaluation on institutional activities is very good.

OVERALL ASSESSMENT: Prof. Antonella BOGONI

Teaching activities

The candidate Antonella Bogoni has taught several courses at SSSA, for both PhD and master students, on the themes of photonics (microwave photonics, photonics in switching and photonics for telecommunications), since 2003. Since 2016, she teaches regularly also part of the course “Photonics Laboratory for Telecommunications” for the Master students in Engineering of Telecommunications at UNIPI. She has carried out an intense tutoring activity, being the supervisor of many master students and PhD students. She has been involved as external examiner for several PhD final exams in many Italian and foreign Universities. The overall evaluation on teaching activities **is very good**.

Publications

Antonella Bogoni’s publications appeared in top tier international journals and international conferences with a notable impact on the scientific community, as proved by the many citations. In all of the papers, the decisive contribution of the candidate and her role as main author or coordinator of the work is well evident. The research topics are focused on photonics, and span across different technological aspects (from components to complex systems). Some of her publications are widely considered to be seminal work in the field (such as that pertaining to the microwave photonic radars) She has been recognized also with several best paper awards in International Conferences.

It is worth noting that she has been guest editor of many special issues over the last 8 years and, since 2014, editorial board member of *Frontiers of Optoelectronics*. The overall evaluation of publications and editorial activities of prof. Bogoni is **excellent**.

Research Activities

Prof. Antonella Bogoni has carried out important and extensive studies on four main areas of research: microwave photonics, integrated photonics, Optical Time Division Multiplexing systems, all-optical signal processing. She has reached an international recognition in her field of work with a wide-spanning network of cooperation. She has been responsible of and participant in many national and international projects (AFRL-USA, ONR-USA, H2020-EU, ESA, ASI, etc.), succeeding in raising and managing a large quantity of funds. Notably, she also got 3 ERC grants. She’s also co-inventor of 55 patents and an evaluator of several project proposals. Overall, the evaluation of her research activity is **excellent**.

Institutional activities/Third mission

Prof. Bogoni collaborated within institutional projects with OHB, IBM, Huawei, Thales and with other SMEs. She was co-founder of Photrix, a start-up company, of which she was President and CEO from 2007 to 2011. She has been intensively involved in activities leading to significant value addition and contribution to the Santa Anna School. In particular, she has undertaken a leading role in creating the INPHOTEC foundry at SSSA and is the current Director of the National Laboratory of Photonic Networks and Technologies (PNTLab). She has also been a member of the “emerging Technology” Ph.D. committee at SSSA and a Member of the SSSA committee to evaluate the off-site student stays in the engineering sector.

Overall, the evaluation of the institutional activity and third mission is **very good**.

Summing up, we believe that Antonella Bogoni is fully qualified to be appointed full professor by the Scuola Superiore Sant’Anna.

OVERALL ASSESSMENT: Prof. Luca VALCARENGHI

Teaching activities

The candidate Luca Valcarenghi has taught many relevant courses at the SSSA over the years, both at the graduate and undergraduate levels, in particular for the Master Erasmus Mundus PIXNET and in the Master of Computer Science and Networking. His involvement in the development of the school teaching curriculum is remarkable. He is greatly appreciated by his students as demonstrated through the provided information on the course evaluation scores. Moreover, he has supervised and mentored a large number of undergraduate, master and PhD students since 2005 and has been involved as external examiner or reviewer for several PhD theses discussed in other Italian and foreign Universities. Overall, the evaluation of the teaching activity is **very good**.

Publications

The candidate is an internationally recognized researcher in optical networking and grid computing. His publications appeared on top tier international journals and international conferences with a good impact on the scientific community, as proved by the several citations. He has been recognized also with some best paper awards in International Conferences.

It is worth noting that he is editorial board member of one IEEE journal and 2 Elsevier journals. Overall, the evaluation of publications is **very good**.

Research Activities

Valcarenghi's research activities are focused on optical network design, analysis and optimization, grid computing and 5G technologies, mainly at the theoretical and algorithmic level. He has led many national and international research projects, funded through competitive research funding programs (H2020-EU, PF7-EU, MIUR etc.), succeeding in raising and managing a good amount of funds. And he has been involved in the organizing committees of many international conferences and workshops also in leading roles. He is the co-inventor of 5 patents. The overall evaluation of research activities of prof. Valcarenghi is **very good**.

Institutional activities/Third mission

Very long list of services for the university (SSSA), in terms of coordinator of courses, workshops and diplomas, graduation committees and recruiting committees. Since 2018 he is director of the PhD program in "Emerging digital technologies", Scuola Sant'Anna, and he has also played the role of vice-president of the Master in Computer Science and Networking from 2016 to 2019. Prof. Valcarenghi collaborated within some institutional projects with TIM and RFI and other SMEs.

The evaluation of the institutional activity and third mission is **very good**.

Summing up, we believe that Luca Valcarenghi is qualified to be appointed full professor by the Scuola Superiore Sant'Anna.