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Curriculum

Filipa R. Prudêncio is a Senior Researcher at Instituto de Telecomunicações (IT), and at the project Simons Collaboration on Extreme Wave Phenomena Based on Symmetries, and an invited assistant professor at ISCTE-IUL. She got a Ph.D degree in Electrical and Computer Engineering, in Telecommunications, at Instituto Superior Técnico (IST) and IT, in 2014. She published 16 scientific articles and 34 conference proceedings. As a team member, she contributed to 9 international projects (1 as co-PI). She received the ANACOM-URSI 2023 Award, the Best Ph.D. Thesis Award from IST, and the Best Student Paper Award at the URSI conference in 2015.

Academic Qualifications

University/Institution	Type	Degree	Period
Instituto Superior Técnico	PhD	Engenharia Electrotécnica e de Computadores	2014
Instituto Superior Técnico	Integrated M.Sc.	Engenharia Electrotécnica e de Computadores	2009
Instituto Superior Técnico	Licenciante	Engenharia Electrotécnica e de Computadores	2007

Teaching Activities

Teaching Year	Sem.	Course Name	Degree(s)	Coord
2024/2025	1°	Electricity and Mechanics	Bachelor Degree in Digital Technologies and Automation;	Yes
2023/2024	2°	Operating Systems	Bachelor Degree in Computer Science and Business Management (PL); Bachelor Degree in Computer Engineering (PL); Bachelor Degree in Computer Engineering; Bachelor Degree in Telecommunications and Computer Engineering (PL); Bachelor Degree in Computer Science and Business Management; Bachelor Degree in Telecommunications and Computer Engineering;	No
2023/2024	1°	Electricity and Mechanics	Bachelor Degree in Digital Technologies and Automation;	Yes
2022/2023	2°	Electronic Circuits and Systems	Bachelor Degree in Telecommunications and Computer Engineering;	No
2022/2023	1°	Programmable Electronics and Digital Signal Processing	Bachelor Degree in Telecommunications and Computer Engineering (PL); Bachelor Degree in Telecommunications and Computer Engineering;	No
2021/2022	2°	Electronic Circuits and Systems	Bachelor Degree in Telecommunications and Computer Engineering;	No
2020/2021	2°	Electronic Circuits and Systems	Bachelor Degree in Telecommunications and Computer Engineering;	No
2020/2021	1°	Operating Systems	Bachelor Degree in Computer Science and Business Management (PL); Bachelor Degree in Computer Engineering (PL); Bachelor Degree in Computer Engineering; Bachelor Degree in Telecommunications and Computer Engineering (PL); Bachelor Degree in Computer Science and Business Management; Bachelor Degree in Telecommunications and Computer Engineering;	No
2019/2020	2°	Fundamentals of Electronics	Bachelor Degree in Telecommunications and Computer Engineering (PL);	No
2019/2020	1°	Cloud Technologies and Systems	Institutional Degree in Escola de Tecnologias e Arquitetura;	Yes
2018/2019	2°	Fundamentals of Electronics	Bachelor Degree in Telecommunications and Computer Engineering (PL);	No
2018/2019	1°	Mechanics and Electricity	Bachelor Degree in Computer Engineering (PL); Bachelor Degree in Computer Engineering; Bachelor Degree in Telecommunications and Computer Engineering (PL);	No

2017/2018	2°	Mobile Communications	Bachelor Degree in Telecommunications and Computer Engineering (PL);	No
2017/2018	1°	Mechanics and Electricity	Bachelor Degree in Computer Engineering (PL); Bachelor Degree in Computer Engineering; Bachelor Degree in Telecommunications and Computer Engineering (PL);	No
2016/2017	2°	Mobile Communications	Bachelor Degree in Telecommunications and Computer Engineering (PL);	No
2016/2017	1°	Operating Systems	Bachelor Degree in Computer Science and Business Management (PL); Bachelor Degree in Computer Engineering (PL); Bachelor Degree in Computer Engineering; Bachelor Degree in Telecommunications and Computer Engineering (PL); Bachelor Degree in Computer Science and Business Management; Bachelor Degree in Telecommunications and Computer Engineering;	No
2015/2016	1°	Cloud Technologies and Systems	Institutional Degree in Escola de Tecnologias e Arquitetura;	Yes
2014/2015	1°	Cloud Technologies and Systems	Institutional Degree in Escola de Tecnologias e Arquitetura;	Yes

Supervisions

• Ph.D. Thesis

- Ongoing

	Student Name	Title/Topic	Language	Status	Institution
1	Guilherme Fonseca	Study of Topological Weyl Points in Metamaterials	English	Developing	ISCTE-IUL

• M.Sc. Dissertations

- Concluded

	Student Name	Title/Topic	Language	Institution	Concluding Year
1	Rodrigo Silva	Propagação de ondas eletromagnéticas em materiais não-hermitianos	English	ISCTE-IUL	2022
2	Guilherme Fonseca	Study of Topological Weyl Points in Metamaterials	English	ISCTE-IUL	2022
3	Gonçalo Painha	Quantum Algorithms for Abelian Groups	English	ISCTE-IUL	2022
4	Paulo Saldanha	A Quantum Leap Into the Future of Computer Science	English	ISCTE-IUL	2022

5	Nuno Miguel Bastos Ferreira	O Paradoxo dos Gémeos em Relatividade Restrita: Da Aceleração Infinita para a Finita	English	ISCTE-IUL	2021
6	Dharmine Jitenda Jamnadas	Quantum Entanglement	English	ISCTE-IUL	2021
7	Simão Gonçalves Eusébio	Introduction to Quantum Computing	English	ISCTE-IUL	2020
8	Gonçalo Filipe Andrade dos Santos	Influence of the special relativity theory on GPS	English	ISCTE-IUL	2018

Total Citations

Web of Science®	148
Scopus	155

Publications

• Scientific Journals

- Scientific journal paper

1	<p>Prudêncio, R. F. & Silveirinha, M. G. (2021). Asymmetric electron energy loss in drift-current biased graphene. <i>Plasmonics</i>. 16, 19-26</p> <p>- Times Cited Web of Science®: 7</p> <p>- Times Cited Scopus: 7</p> <p>- Times Cited Google Scholar: 9</p>
2	<p>Prudêncio, F. & Silveirinha, M. G. (2018). Asymmetric Cherenkov emission in a topological plasmonic waveguide. <i>Physical Review B</i>. 98 (11)</p> <p>- Times Cited Web of Science®: 8</p> <p>- Times Cited Scopus: 11</p> <p>- Times Cited Google Scholar: 15</p>
3	<p>Prudêncio, F. R., Costa, J. R., Fernandes, C. A., Engheta, N. & Silveirinha, M. G. (2017). Experimental verification of 'waveguide' plasmonics. <i>New Journal of Physics</i>. 19, 1-8</p> <p>- Times Cited Web of Science®: 19</p> <p>- Times Cited Scopus: 21</p> <p>- Times Cited Google Scholar: 21</p>
4	<p>Prudêncio, R. F. & Silveirinha, M. G. (2016). Optical isolation of circularly polarized light with a spontaneous magnetoelectric effect. <i>Physical Review A</i>. 93 (4)</p> <p>- Times Cited Web of Science®: 28</p> <p>- Times Cited Scopus: 29</p> <p>- Times Cited Google Scholar: 41</p>
5	<p>Prudêncio, F. R., Matos, S. A. & Paiva, C. R. (2015). Asymmetric band diagrams in photonic crystals with a spontaneous nonreciprocal response. <i>Physical Review A - Atomic, Molecular, and Optical Physics</i>. 91 (6)</p> <p>- Times Cited Web of Science®: 18</p> <p>- Times Cited Scopus: 18</p> <p>- Times Cited Google Scholar: 24</p>

6	<p>Prudêncio, F., Matos, S. & Paiva, C. (2014). A geometrical approach of duality transformations for tellegen media. <i>IEEE Transactions on Microwave Theory and Techniques</i>. 62 (7), 1417-1428</p> <p>- Times Cited Web of Science®: 12</p> <p>- Times Cited Scopus: 12</p> <p>- Times Cited Google Scholar: 17</p>
7	<p>Prudêncio, F., Matos, S. & Paiva, C. (2014). Analysis of Waveguides Containing EMCs (electromagnetic conductors) or PEMCs (perfect electromagnetic conductors). <i>Photonics and Nanostructures - Fundamentals and Applications</i>. 12 (5), 437-446</p> <p>- Times Cited Web of Science®: 4</p> <p>- Times Cited Scopus: 4</p> <p>- Times Cited Google Scholar: 5</p>
8	<p>Prudêncio, F., Matos, S. & Paiva, C. (2014). Exact image method for radiation problems in stratified isorefractive tellegen media. <i>IEEE Transactions on Antennas and Propagation</i>. 62 (9), 4637 -4646</p> <p>- Times Cited Web of Science®: 8</p> <p>- Times Cited Scopus: 8</p> <p>- Times Cited Google Scholar: 12</p>

- Editorial

1	<p>Ramaccia, D., Silveirinha, M., Hadad, Y., Asadchy, V. & Prudêncio, F. R. (2024). Time-varying artificial photonic metastructures: Introduction to the special issue. <i>Optical Materials Express</i>. 14 (6), 1472-1474</p>
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• Conferences/Workshops and Talks

- Publication in conference proceedings

1	<p>Prudêncio, F. R., Matos, S. A. & Paiva, C. R. (2014). The most general classes of Tellegen media reducible to simple reciprocal media: a geometrical approach. In 31st General Assembly and Scientific Symposium of the International Union of Radio Science, URSI GASS 2014. Beijing: IEEE.</p> <p>- Times Cited Scopus: 1</p> <p>- Times Cited Google Scholar: 5</p>
2	<p>Prudêncio, F. R., Matos, S. A. & Paiva, C. R. (2013). Generalized image method for radiation problems involving the Minkowskian isotropic medium. In 2013 7th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, METAMATERIALS 2013. (pp. 304-306).: IEEE.</p> <p>- Times Cited Web of Science®: 1</p> <p>- Times Cited Scopus: 1</p> <p>- Times Cited Google Scholar: 1</p>

- Talk

1	<p>Prudêncio, R. F. & Silveirinha, M. G. (2020). First Principles Calculation of Topological Invariants by Means of the Photonic Green's Function. The 14th European Conference on Antennas and Propagation.</p>
2	<p>Prudêncio, R. F. & Silveirinha, M. G. (2019). First Principles Calculation of Topological Invariants of Lossy Photonic Crystals. Nanophotonics and Micro/Nano Optics International Conference.</p>
3	<p>Prudêncio, R. F. & Silveirinha, M. G. (2019). First Principles Calculation of Topological Invariants by Means of the Photonic Green's Function. The International Conference on Metamaterials, Photonic Crystals and Plasmonics META.</p>

4	Prudêncio, R. F. & Silveirinha, M. G. (2018). Asymmetric Cherenkov Emission in a Graphene Sheet with a Drift-Current. <i>Metamorphose International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - METAMATERIALS</i> . - Times Cited Google Scholar: 1
5	Prudêncio, R. F. & Silveirinha, M. G. (2017). Asymmetric Cherenkov Emission in a Topological Plasmonic Waveguide. <i>Plasmonica</i> .
6	Pavia, J.P., Prudêncio, R. F. & Ribeiro, M. (2016). Design of Low Cost Frequency Selective Structures with Extremely Small Bandwidth. 4th Annual Conference of COST Action MP1204 & SMMO2016 Conference.
7	Prudêncio, R. F. (2016). Novel Designs for Optical Isolation of Circularly Polarized Light. COST ACTION MP1204 SMMO - International Conf. on Semiconductor Mid-IR Materials and Optics held jointly with the 4th Annual Conference of COST Action MP1204 SMMO.
8	Prudêncio, R. F., Matos, S. & Paiva, C. (2015). Asymmetric Band Structures with Nonreciprocal Materials and Chiral Media. <i>European Conf. on Antennas & Propagation - EUCAP</i> .
9	Prudêncio, R. F. & Silveirinha, M. G. (2015). One-Way Propagation of Light with Topological Insulators. <i>International Conf. on Semiconductor Mid-IR Materials and Optics - Conference of COST Action MP1204</i> .
10	Prudêncio, R. F. & Silveirinha, M. G. (2015). "Optical Diode" with Topological Insulators and Chiral Media. <i>International Conference on Metamaterials, Photonic Crystals and Plasmonics META</i> .
11	Prudêncio, R. F. & Silveirinha, M. G. (2015). Surface Plasmons at a Single Air-Parallel-Plate Metamaterial Interface. <i>Photonica</i> .
12	Prudêncio, R. F., Matos, S. & Paiva, C. (2015). Asymmetric Band Structures with Nonreciprocal Materials and Chiral Media. <i>European Conf. on Antennas & Propagation - EUCAP</i> .
13	Prudêncio, R. F., Matos, S. & Paiva, C. (2014). Periodic bi-isotropic crystals with spectral asymmetry. 2014 8th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, METAMATERIALS 2014.
14	Prudêncio, R. F., Matos, S. & Paiva, C. (2014). Asymmetric Band Diagrams in Photonic Crystals with a Spontaneous Nonreciprocal Response. <i>Congresso do Comité Português da URSI</i> .
15	Prudêncio, R. F. & Matos, S. (2013). Transmission Line Analysis of Waveguides With a Minkowskian Isotropic Medium Cladding. <i>Conf. on Telecommunications - ConfTele</i> .
16	Matos, S., Prudêncio, R. F. & Paiva, C. (2012). Non-birefringent omega-like media. <i>International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - METAMATERIALS</i> .
17	Prudêncio, R. F., Matos, S. & Paiva, C. (2012). Modal Analysis of Waveguides Containing Minkowskian Isotropic Media (MIM) and the Perfect Electromagnetic Conductor (PEMC). <i>International Congress on Advanced Electromagnetic Materials in Microwaves and Optics - METAMATERIALS</i> .
18	Prudêncio, R. F., Matos, S. & Paiva, C. (2011). Waveguides containing Minkowskian isotropic media (MIM) and the perfect electromagnetic conductor (PEMC). <i>Encuentro Ibérico de Electromagnetismo Computacional - EIEC</i> .

• Other Publications

- Non-peer-reviewed papers

1	Guilherme R. Fonseca, Prudêncio, R. F., Silveirinha, M. G. & Paloma A. Huidobro (2024). First-principles study of topological invariants of Weyl points in continuous media. <i>Physical Review Research</i> .
2	Prudêncio, R. F. & Silveirinha, M. G. (2023). Replicating physical motion with Minkowskian isorefractive spacetime crystals. <i>Nanophotonics</i> . 12 (11), 1-11 - Times Cited Web of Science®: 7 - Times Cited Scopus: 7
3	Prudêncio, R. F. & Silveirinha, M. G. (2023). Synthetic Axion Response with Space-Time Crystals. <i>Physical Review Applied</i> . - Times Cited Web of Science®: 12 - Times Cited Scopus: 14 - Times Cited Google Scholar: 21
4	Prudêncio, R. F. & Silveirinha, M. G. (2022). Ill-Defined Topological Phases in Local Dispersive Photonic Crystals. <i>Physical Review Letters</i> . - Times Cited Web of Science®: 6 - Times Cited Scopus: 6 - Times Cited Google Scholar: 9
5	Prudêncio, R. F. (2021). First Principles Calculation of the Topological Phases of the Photonic Haldane Model. <i>Symmetry</i> . 13 (11), 2229-2229 - Times Cited Web of Science®: 4 - Times Cited Scopus: 4 - Times Cited Google Scholar: 5
6	Prudêncio, R. F. & Silveirinha, M. G. (2021). Monopole embedded eigenstates in nonlocal plasmonic nanospheres. <i>Applied Physics Letters</i> . - Times Cited Web of Science®: 2 - Times Cited Google Scholar: 4
7	Prudêncio, R. F. & Silveirinha, M. G. (2020). First principles calculation of topological invariants of non-Hermitian photonic crystals. <i>Communications Physics</i> . - Times Cited Web of Science®: 12 - Times Cited Scopus: 12 - Times Cited Google Scholar: 14
8	Prudêncio, R. F. (2014). Revisiting bi-isotropic media: new analytical and geometrical approaches. Ph. D. Thesis.
9	Prudêncio, R. F. (2009). Electromagnetic effects of metamaterials with negative parameters. Master Thesis.

Awards

ANACOM-URSI Portugal 2023 Award (2023)

G. F. Fonseca, F. Prudêncio, M. G. Silveirinha, P. Huidobro, Third place of the Best Student Paper Competition, Title of the work: "Topological Classification of Weyl Points in Dispersive Continuous Media", in 2023, at the conference 17.º Congresso do (2023)

Young Scientist Award in the 31st URSI General Assembly and Scientific Symposium, (2014)

Best Student Paper Award in the Student Paper Competition of the 31st URSI General Assembly and Scientific Symposium (2014)

3rd place in the Student Paper Competition in the 7th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics (2013)

Organization/Coordination of Events

Type of Organization/Coordination	Event Title	Organizer	Year
Member of scientific event committee	Session convener at the conference; URSI International Symposium on Electromagnetic Theory, in 2023, and The General Assembly and Scientific Symposium of the International Union of Radio Science, in 2023, and in AT-RASC 2024.		2024
Member of scientific event committee	Award Chair of the URSI-ANACOM conference for the best student paper award, in 2023.		2023
Member of scientific event committee	Chair person session at the conference The General Assembly and Scientific Symposium of the International Union of Radio Science, in 2023.		2023
Member of scientific event committee	Member of the local committee at the conferences: IEEE International Workshop on Antenna Technology, in 2010, The International Conference on Metamaterials, Photonic Crystals and Plasmonics, in 2019.		2019
Coordination of scientific event (with scientific committee) outside of ISCTE-IUL	Presidente da Comissão Organizadora Chair of the local committee of the conference COST Action MP1204, in 2016.		2016