

Third edition of the **SUMMER SCHOOL** on


## Microwaves and mm-waves for the Design of Advanced Wireless Links: Communication, Sensing and Power Transfer


June 15-20, 2026

Department of Information Engineering, University of Pisa, Pisa, Italy

<https://www.dii.unipi.it/microwaves-and-mm-waves-design-advanced-wireless-links-communication-sensing-and-power-transfer-2026>

### Summer School Program (last update: December 22, 2025)

Day	Morning class	Afternoon class
Monday June 15 9.00-18.00	<p><b>Welcome message</b> Introduction to the Summer School objectives and contents Paolo Nepa, University of Pisa (Summer School Coordinator)</p> <p><b>Electromagnetic wave propagation: a ray-optical picture</b> Giuliano Manara, University of Pisa</p>	<p><b>Guided wave modeling in coaxial cables, printed lines and waveguides</b> Alice Buffi, University of Pisa</p> <p><b>Microwave device modeling</b> Simone Genovesi, University of Pisa</p> <p><b>Lecture from the attendee of the 2025 edition of the Summer School who presented the best project work</b> (to be nominated)</p>
Tuesday June 16 9.00-18.00	<p><b>The antenna as a system component</b> Paolo Nepa, University of Pisa</p> <p><b>Analysis and design of passive devices: modeling and numerical simulation</b> Andrea Michel, University of Pisa</p> 	<p><b>Fundamentals of transceivers for communication systems</b> Francesco Pieri, University of Pisa</p> <p><b>Manipulating microwaves and mm-waves with periodic structures</b> Filippo Costa, University of Pisa</p> <p><i>In the evening, in Pisa downtown, 70,000 wax candles and fireworks will illuminate the Lungarni for one magical night (do not miss LUMINARA 2026!)</i></p>

<p>Wednesday June 17</p> <p><b>Educational visit and lecturers</b></p> <p><b>Medicina Radio Astronomical Station (Bologna)</b> 8.00-20.00</p>	<p>Transfer from Pisa to Medicina (by private bus)</p> <p><b>Antennas for radio astronomy</b> <i>Pietro Bolli, INAF, Florence</i></p> <p><b>Radio astronomical receivers</b> <i>Marco Poloni, INAF, Bologna</i></p> <p><b>Protection of radio astronomy</b> <i>Federica Caputo, INAF, Bologna</i></p> <p><i>Class-building lunch</i></p>	<p><b>Guided tour of the Visitor Center</b> <i>Simona Righini, INAF, Bologna</i></p> <p><b>Optical fibre in radio astronomy</b> <i>Giovanni Tartarini, University of Bologna</i> <i>Federico Perini, INAF, Medicina, Bologna</i></p> <p><b>Guided tour to the antenna sites</b> <i>Simona Righini, , INAF, Bologna</i></p>  <p><a href="#">Link a video gallery</a></p> <p>Return to Pisa (by private bus)</p>
<p>Thursday June 18 9.00-18.00</p>	<p><b>Advanced Systems for High Throughput Satellite Communications</b> <i>Martina Angelone, European Space Agency, Noordwijk (The Netherlands)</i></p> <p><b>Advanced Distributed Antenna Systems: RF Propagation Insights and Design Principles</b> <i>Marco Fantuzzi, JMA Wireless, Bologna</i></p>	<p><b>Fundamentals of satellite communications: a hands-on approach</b> <i>Filippo Giannetti, University of Pisa</i></p> <p><b>Microwave and High-Speed Photonics: Applications to 6G Systems</b> <i>Roberto Sabella, Ericsson Research, Pisa</i></p>
<p>Friday June 19 9.00-18.00</p>	<p><b>Wireless Transport for 5G backhaul ... and more</b> <i>Francesca Rosati, Nokia Italia (Milan)</i></p> <p><b>mmWave and sub-THz communication systems - an industrial viewpoint</b> <i>Dr. Danilo De Donno, Huawei Italy Research Center, Milan</i></p>	<p><b>Devices and architectures for battery-less RF systems</b> <i>Alessandra Costanzo, University of Bologna</i></p> <p><b>Wireless communication systems and technologies: from the basics to 5G standards</b> <i>Giacomo Bacci, University of Pisa</i></p>
<p>Saturday June 20 9.00-16.00</p>	<p><b>Automotive mm-wave radar sensors</b> <i>Sergio Saponara, University of Pisa</i></p> <p><b>Wave propagation in complex environments and multipath models</b> <i>Pierpaolo Usai, University of Pisa</i></p>	<p><b>Project-work assignment</b> <i>Paolo Nepa, University of Pisa</i></p> <p><i>Project work description: students interested to earn the 6 ECTS credits will be required to make a presentation (PowerPoint, Canva, etc...) with a voice-over comment for a total duration between 15 and 20 min, where the student addresses a topic at his/her choice yet related to the Summer School contents <b>The project work must be submitted by the end of August 2026</b></i></p>