# Venice International University
# Graduate Seminar
# Advanced Wireless Technologies for Enhancing the Radio Interface from 5G towards 6G

**Venice International University**

**September 7-11, 2026**

**Faculty**

Ibrahim Tekin, Sabanci University (Scientific Coordinator)
Ozgur Gurbuz, Sabanci University
Korkut Kaan Tokgoz, Sabanci University
Michele Zorzi, University of Padova
Marco Giordani, University of Padova
Sofie Pollin, KU Leuven
Francesco Luzzini, Università del Piemonte Orientale

## Agenda

**Day 1 | Monday, September 7, 2026**

09:00-09:30 – *Registration and VIU Welcome Remarks*

09:30-09:45 – Introduction to the course (Prof. Ibrahim Tekin)

09:45-11:00 – Students' presentations (5 students - 12 min presentation + 3 min Q&A)

11:00-11:30 – Coffee *Break*

11:30-13:15 – Students' presentations (7 students - 12 min presentation + 3 min Q&A)

13:15-14:00 – *Lunch*

14:00-15:30 – Students' presentations (6 students - 12 min presentation + 3 min Q&A)

15:30- 15:45 – *Break*

15:45-17:00 – Students' presentations (5 students - 12 min presentation + 3 min Q&A)

**Day 2 | Tuesday, September 8, 2026**

9:00-9:10 – Introduction to day 2 (Prof. Marco Giordani and Prof. Michele Zorzi)

09:10-10:40 – Keynote 1- A Deep Dive into 3GPP 5G NR Network Specifications and its Applications (Prof. Marco Giordani)

10:40-11:10 – Coffee *Break*

11:10-12:10 – Keynote 2 - Massive Data-driven Integrated Sensing and Communication (Prof. Sofie Pollin)

12:10-13:10 – Keynote 3 – Title tbc (Prof. Michele Zorzi)

13:10-14:00 – *Lunch*

14:00-15:30 – Interactive session: Students & Faculty

15:30- 15:45 – *Break*

15:45-17:15 – Interactive session: Students & Faculty

**Day 3 | Wednesday, September 9, 2026**

9:00-9:10 – Introduction to day 3 (Prof. Ozgur Gurbuz)

09:10-10:40 – Keynote 4 - Terahertz Band Communications for Next Generation NTN Networks (Prof. Ozgur Gurbuz)

10:40-11:10 – Coffee *Break*

11:10-12:10 – Keynote 5 - Beam steering antennas for next generation communication technologies – Prof. Ibrahim Tekin

12:10-13:10 – Keynote 6 ardware impairments framework for next-generation wireless communications (Prof. Korkut Tokgoz)

13:10-14:00 – *Lunch*

14:00-15:30 – Interactive session: Students & Faculty (Faculty name)

15:30- 15:45 – *Break*

15:45-17:15 – Interactive session: Students & Faculty (Faculty name)

*19:00 – Social Dinner in Venice*

**Day 4 | Thursday, September 10, 2026**

09:00-9:15 – Introduction to day 4 (Prof. Sofie Pollin)

9:15-10:45 – Open discussions while students work on their proposals: Students and Faculty

10:45-11:15 – *Coffee Break*

11:15-13:00 – Open discussions while students work on their proposals: Students and Faculty

13:00-14:00 – *Lunch*

14:00-15:30 – Open discussions while students work on their proposals: Students and Faculty

15:30 - Field Trip: (In)visible traces: Water management in early modern Venice (Prof. Francesco Luzzini)

**Day 5 | Friday, September 11, 2026**

09:00-09:15 – Introduction to day 5 (Prof. Korkut Tokgoz)

09:15-10:45 – Students' presentations (11 st - 8 min presentation including Q&A)

10:45-11:15 – Coffee *Break*

11:15-12:45 – Students' presentations (11 st - 8 min presentation including Q&A)

12:45-13:00 - Closing Remarks

13:00-14:00 – *Lunch*

## Faculty's short bio

**Ibrahim Teki** is currently a professor at Electronics Engineering, Faculty of Engineering and Natural Sciences of Sabanci University, Istanbul. He received his B.S and M.S degrees from Electrical and Electronics Engineering Department of Middle East Technical University (METU) in 1990 and 1992, respectively. From 1993 to 1997, he was with the Electrical Engineering Department of the Ohio State University (OSU) where he received his Ph.D degree in 1997. During 1990-1993 he was a research assistant at METU, and from 1993 to 1997 he worked as a Graduate Research Associate at the ElectroScience Laboratory, OSU. 1997 to 2000, he worked as a researcher in Wireless Technology Lab of Bell Laboratories, Lucent Technologies. His research interests include RF and microwave circuit design, millimeter-wave antennas, circuits and electromagnetics. He is involved in various projects including Indoor positioning using GPS signals, 77 GHz LNA and antenna design, RFIC design for WLAN systems, antennas for full duplex systems, 5G MEMS reconfigurable antennas and OAM antennas for communication. He is a Senior Member of the IEEE Antennas and Propagation Society.

**Özgür Gürbüz** is a Professor of Electronics Engineering at Sabanci University.
She received her B.S. and M.S degrees in Electrical and Electronics Engineering at Middle East Technical University, in 1992 and 1995, respectively. She received her Ph.D. degree in Electrical and Computer Engineering from Georgia Institute of Technology in 2000. From 2000 until 2002 she worked as a researcher and systems/algorithms engineer for Cisco Systems, in Wireless Access and Wireless Networking Business Units. As of September 2002, Dr. Gurbuz joined the Faculty of Engineering and Natural Sciences at Sabanci University. Her research interests remain in the field of wireless communications and networks, specifically design of link and higher layer network algorithms/protocols for emerging physical layer techniques including full-duplex communication, cooperative communication, MIMO, smart antennas. Recently, she has been working on full-duplex communication, digital self-interference cancellation, THz band aerial (drone/UAV/satellite) communications and applications of machine learning in wireless communications/networks. She is a member of IEEE and IEEE Communications Society.

**Korkut Kaan Tokgoz** is a faculty member at the Faculty of Engineering and Natural Sciences, Sabanci University, Istanbul, Turkey. He earned his Ph.D. in Physical Electronics from the Tokyo Institute of Technology in Japan, where he focused on developing millimeter-wave CMOS transceivers for 100Gb/s wireless communication systems. His educational journey also includes a Master of Engineering and a Master of Science from the same institution, as well as the Middle East Technical University in Ankara, Turkey, specializing in electromagnetics and

physical electronics, respectively. In his professional career, Tokgoz has held various positions in academia and industry, including serving as a Specially Appointed Assistant Professor at the Tokyo Institute of Technology and a Senior Researcher/Assistant Manager at NEC's Central Research Laboratories/Wireless Access Business Unit in Kanagawa, Japan. His research interests are broad, covering de-embedding calibration, device characterization, analog circuit design, and RF/millimeter-wave/sub-terahertz CMOS circuits. Beyond research, Tokgoz has been active in teaching, offering courses on RF/Microwave Design, Digital Electronics, and specialized topics in Millimeter-Wave and Terahertz CMOS. He also holds the position of Co-Founder & Technical Advisor at Evrim Co. Ltd. Shin- Yokohama, Japan, a venture focused on Silicon IP consultation and education.

**Michele Zorzi** is a Professor of Telecommunications at the School of Engineering of the University of Padova. He received the Laurea Degree and the Ph.D. in Electrical Engineering from the University of Padova, Italy, in 1990 and 1994, respectively. Prior to his current appointment, he was a faculty member at the Politecnico di Milano (1993-1996), a Research Scientist at the Center for Wireless Communications, University of California at San Diego (1995-1998), and an Associate Professor (1998-2000) and then Professor (2000-2003) at the University of Ferrara. He has many international contacts and collaborations, and has been PI or co-PI of numerous research projects, both in Europe and in the US, as well as more than 20 other projects funded by different funding agencies and industrial companies.

**Marco Giordani** (Senior Member, IEEE) is an Associate Professor in Telecommunications at the Department of Information Engineering (DEI) of the University of Padova. During his Ph.D., he visited New York University (NYU), USA, and TOYOTA Infotechnology Center, Mountain View, CA, USA. He is collaborating with several academic and industrial research partners, including InterDigital, NYU, TOYOTA, NIST, the US Army Research Office, Orange, Huawei, King's College, Inmarsat, KAUST, ESA, and the European Union. He co-authored 80+ published articles in the area of wireless networks, three of which have received Best Paper Awards. He is a recipient of several awards, including the 2018 IEEE Daniel E. Noble Fellowship Award from the IEEE Vehicular Technology Society, the 2021 IEEE ComSoc Outstanding Young Researcher Award for EMEA, and the 2024 IEEE ComSoc Young Professional Award for Best Practitioner. Marco Giordani serves as Editor for the IEEE Transactions of Wireless Communications and the IEEE Transactions on Mobile Computing. He is the Director of the PhD Summer School of Information Engineering (SSIE), the Coordinator of the IEEE Italy Entrepreneurship Committee, and a Member of the same Committee for IEEE R8. His research focuses on 5G/6G cellular networks and PHY/MAC protocol design.

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**Sofie Pollin** is a Professor Electrical Engineering at KU Leuven. She did my PhD research at imec, and obtained her PhD on cross-layer optimization for energy efficient wireless systems in September 2006 from KU Leuven, with honors. During the PhD, she had the opportunity to do an internship at National Semiconductor Corporation, Santa Clara USA, and be a visiting researcher at UC Berkeley. After the PhD, I went to UC Berkeley for a post-doc on cognitive radio and networking. After two amazing years, she rejoined the wireless group at imec Leuven, first as senior researcher and then as principal scientist. Her work at imec focused on spectrum sensing for cognitive radio, and software defined radio for LTE, WLAN and video broadcasting standards.
Her research interests focuses on wireless systems and networked systems. She works on 5G and beyond, Massive MIMO, cell-free communication, battery-less and sustainable electronics, aerial and non-terrestrial networks, integrated communication and sensing and mmWave and THz communication.

**Francesco Luzzini** is Assistant Professor of History of Science at Università del Piemonte Orientale (Italy) and a former Marie Curie Fellow at Ca' Foscari University of Venice and Johns Hopkins University. His work focuses on the Earth and environmental sciences, natural philosophy, and medicine in Renaissance and early modern Europe, with important forays into modern and contemporary contexts. He is Italian Editor for the Isis Bibliography of the History of Science.
Francesco is equally interested in the practical side of the history of science and in the history of theories and intellectual networks with their social, philosophical, political, and religious implications. He has also developed a strong expertise in the replication of experimental practices on field and in laboratory. In recent years, he has grown especially interested in exploring how the debate on mineral generation and the management of natural resources in early modern Europe influenced the development of natural philosophy, the Earth sciences, and the human-environment system.