Hrvatska sekcija IEEE
Odjel za antene i širenje elektromagnetskih valova

pozivaju Vas na predavanje koje će se **13. listopada 2025.** godine, održati na FESB-u, s početkom u **$11^{00}$** sati, u prostoriji _____.

Predavač:

**Prof. Yi Huang**, IEEE Fellow, The University of Liverpool, UK
**Distinguished Lecturer**, IEEE Antennas and Propagation Society
**Associate Editor** of IEEE Trans on Antennas and Propagation

Moderator: Prof. Miroslav Joler, IEEE Senior Member
Chair of the Antennas & Propagation Chapter of IEEE Croatia

Tema: "**Wireless energy harvesting and power transfer from RF to optical frequencies**"


## Abstract

In this presentation, I will explore the fascinating realm of wireless energy harvesting (WEH) and wireless power transfer (WPT). WEH focuses on efficiently obtaining energy from the wireless environment, while WPT involves the wireless transmission of energy. The key device connecting these two technologies is the rectifying antenna, also known as the rectenna.
While WEH aims to harvest energy across a broad range of frequencies, WPT is designed for efficient energy transfer within specific frequency bands. My talk will begin with an overview of rectenna systems developed thus far, highlighting the challenges in maximizing power conversion efficiency—the crucial performance metric for rectennas. Most current research in this field is focused on RF and microwave frequencies. However, I will discuss the exciting potential of extending this research to higher frequencies, particularly for harnessing solar energy—the largest energy source available to us.

Furthermore, I will present noteworthy research conducted at the University of Liverpool, showcasing innovative work in WEH and WPT. We will delve into diverse areas of exploration, including the integration of communication and wireless power transfer, which holds promising prospects for the future.

Wireless energy harvesting and power transfer technologies have the potential to revolutionize our energy landscape. By improving rectenna systems and venturing into higher frequencies, we can unlock new possibilities for wireless energy generation. The talk will be concluded with some of the latest WPT applications.


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*Napomene:*

*Predavanje je otvoreno za sve zainteresirane tj. i za kolege koji nisu članovi IEEE-a.*

*Posebno pozivamo studente - prilika za osvojiti prigodnu nagradu!*

## About the Speaker

**Prof Yi Huang** received DPhil in Communications from the University of Oxford, UK in 1994. He has been conducting research in the areas of wireless communications, applied electromagnetics, radar, and antennas since 1987. His experience includes 3 years spent with NRIET (China) as a *Radar Engineer* and various periods with the Universities of Birmingham, Oxford, and Essex in the UK as a member of research staff. He worked as a *Research Fellow* at British Telecom Labs in 1994 and then joined the Department of Electrical Engineering & Electronics, the University of Liverpool, UK as a *Faculty member* in 1995, where he is now a full *Professor in Wireless Engineering*, the *Head of High Frequency Engineering Group*.

Dr Huang has published over 500 refereed papers in leading international journals and conference proceedings and authored books on *Antennas: from Theory to Practice* (John Wiley, 2008, and 2021) and *Reverberation Chambers* (Wiley 2016, and 2019). He has received over 10 awards (e.g. the IET Premium Award 2022 for Best Paper, EuCAP2023 Best Antenna Paper, the IET Innovation Award 2018, and BAE Systems Chairman's Award 2017) and many research grants from research councils, government agencies, charities, the EU, and industry, acted as a consultant to various companies, and served on a number of national and international technical committees (such as the IET, EPSRC, European ACE, COST-IC0603, and COST-IC1102, and EurAAP) and been an Editor, Associate Editor or Guest Editor of four of international journals (including IEEE AWPL 2016-2022). He has been a keynote/invited speaker and organiser of many international conferences and workshops (e.g. EuCAP2018/2024, IEEE iWAT, WiCom, and LAPC). He was the Editor-in-Chief of *Wireless Engineering and Technology,* Associate Editor of *IEEE AWPL*, and the UK/Ireland Delegate to EurAAP. He is now an Associate Editor of *IEEE Trans on Antennas and Propagation*, a College member of EPSRC, a member of the IEEE APS New Technology Directions Committee, a Distinguished Lecturer of IEEE APS, and a Fellow of IEEE. More information can be found at: www.liverpool.ac.uk/people/yi-huang

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