IEEE AP-S DL Workshop – KTH Edition

Date: September 25, 2026
Location: Gradängsalen, Teknikringen 1, KTH Main Campus, Stockholm, Sweden
Attendance: 30 participants in-person
Audience Profile: Master's, and Ph.D. students, Postdoc Researchers.

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Executive Summary

On September 25, 2026, the IEEE AP-S Distinguished Lecturer (DL) Workshop – Sweden Edition was held at the KTH Royal Institute of Technology in Stockholm. Organized by the IEEE Sweden Section Joint MTT/AP Chapter, the workshop brought together researchers, faculty members, and students for a full day of lectures covering contemporary topics in electromagnetic theory, computational electromagnetics, antenna modeling, near-field communications, imaging, and scientific machine learning. The program combined established theoretical foundations with modern computational and engineering approaches, providing a broad view of current developments in antennas and electromagnetics.

The workshop also provided an opportunity for interaction among researchers from different universities and countries. The lectures were complemented by questions and discussions with the audience, while informal activities created additional opportunities for networking and exchange within the IEEE AP-S community.

Scientific Program

The workshop featured seven lectures spanning electromagnetic scattering, computational electromagnetics, antenna analysis, spatial degrees of freedom, machine learning, and diffraction modeling. The program included:

1) **The Fascinating World of Lorenz–Mie Scattering:** Prof. Ari Sihvola (Aalto University, Finland) introduced the audience to Lorenz–Mie scattering and its role in understanding electromagnetic scattering phenomena.

2) **Computational Electromagnetics: From Basics to Mastery:** Prof. Özlem Özgün (Hacettepe University, Türkiye) addressed computational electromagnetics from fundamental concepts toward advanced analysis and simulation approaches.

3) Ray Tracing for Antenna Modeling: Balancing Accuracy and Speed: Prof. Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden) discussed ray tracing approaches for antenna modeling, with emphasis on balancing computational efficiency and modeling accuracy.

4) How Many Spatial Degrees of Freedom Are There? From Antennas and Near-Field Communications to Imaging and Computation: Prof. Mats Gustafsson (Lund University, Sweden) introduced spatial degrees of freedom across antenna systems, near-field communications, imaging, and computational electromagnetics.

5) Scientific Machine Learning for Electromagnetic Field Computation: Prof. Costas Sarris (University of Toronto, Canada) highlighted the application of scientific machine-learning techniques to electromagnetic field computation.

6) Electromagnetic Diffraction Modeling and Simulation: Prof. Levent Sevgi (Istanbul Technical University, Türkiye) focused on electromagnetic diffraction modeling and simulation, connecting fundamental electromagnetic concepts with practical computational analysis.

7) Decomposition Methodology for Solving Maxwell's Equations at Scale: Prof. Zhen Peng (University of Illinois, USA) introduced decomposition-based methodologies for solving Maxwell's equations at large computational scales.

Interaction and Participation

The workshop created an active environment for academic exchange. The audience followed lectures covering both classical electromagnetic theory and emerging computational techniques, with opportunities for questions and discussion throughout the day. The range of topics allowed participants to connect scattering theory, numerical electromagnetics, ray-based antenna modeling, near-field communications, imaging, machine learning, and large-scale Maxwell solvers within a common electromagnetic-engineering framework.

Beyond the formal lecture sessions, the workshop provided opportunities for informal interaction among speakers, organizers, and participants. The group photographs and social activities document the collaborative atmosphere surrounding the event and the broader exchange within the IEEE AP-S community in Sweden.

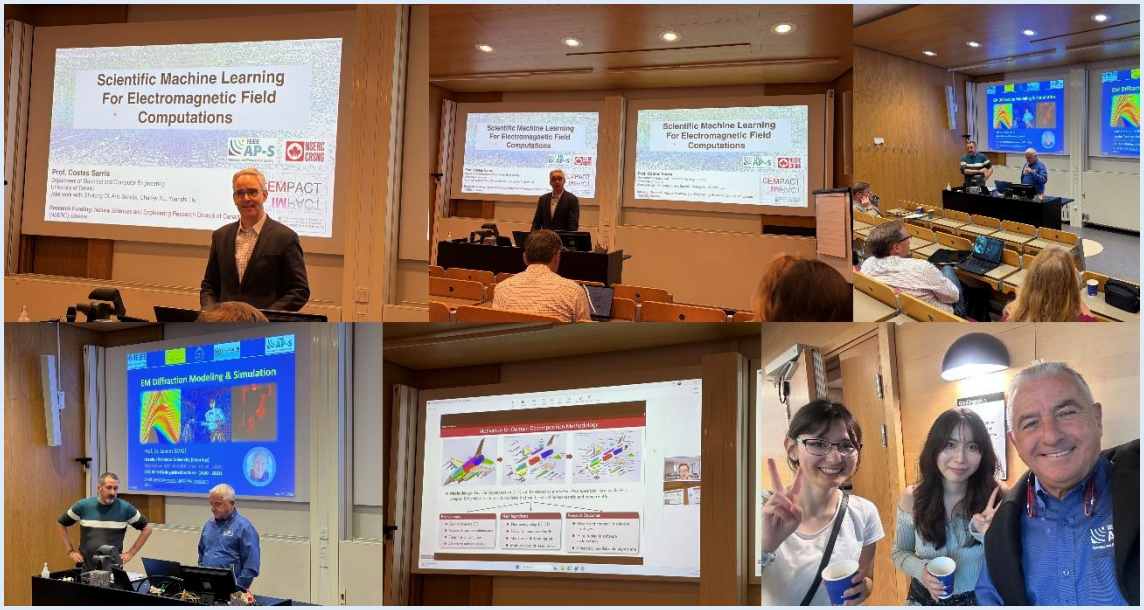
Conclusion

The IEEE AP-S DL Workshop – Sweden Edition provided a broad and technically rich program on current developments in antennas and electromagnetics. By bringing together internationally recognized researchers and a local academic audience at KTH, the workshop facilitated the exchange of research ideas across complementary areas including scattering, computational electromagnetics, antenna modeling, imaging, machine learning, and diffraction. The event also

strengthened professional connections within the IEEE AP-S community and created opportunities for continued academic interaction and collaboration.

Picture 1: *The flyer of the Workshop.*

Picture 2: *A collection of photos and selfies from the workshop.*



Picture 3: *Another selection of photos and selfies from the workshop.*

Picture 4: *Social events from the workshop.*