



Graduate School of Information Science, University of Hyogo
24th International Research Seminar

**REDUCING NUMERICAL ARTIFACTS AND
UNCERTAINTIES IN BIOELECTROMAGNETIC
DOSIMETRY**

Mon. 15 June 2026 (13:00 ~ 14:00) JST

ONLINE SEMINAR

Computational dosimetry is essential for understanding human exposure to electromagnetic fields, supporting the development of exposure limits, and improving the accuracy of biomedical applications using electromagnetic fields. With the development of high-resolution anatomical human models, voxel-based simulations have become a powerful tool for evaluating internal exposure doses. However, electromagnetic simulations using voxel models suffer from numerical artifacts, particularly staircasing errors at curved tissue interfaces. In addition, computational uncertainties also arise from source modeling. Realistic sources, such as wireless devices, are often complex in geometry, circuitry, and excitation conditions, making it difficult to reproduce all details in numerical simulations.

In this talk, I will introduce recent studies on reducing computational uncertainty in bioelectromagnetic dosimetry. The talk will first discuss numerical artifacts in voxel-based anatomical models and present tensor-based approaches developed for low-frequency computation of induced electric fields. It will then introduce recent work on reducing uncertainty in absorbed power density assessment at mmWave frequencies. Finally, equivalent source modeling approaches will be discussed, with emphasis on the combined use of measurement and simulation to represent realistic exposure sources in practical dosimetric assessment.

Register here (free)

<https://shorturl.at/xDSS1>

Contact: rashed@gsis.u-hyogo.ac.jp



Guest Speaker



Yinliang Diao

Associate Professor,
College of Electronic Engineering
South China Agricultural University,
China



Yinliang Diao is an Associate Professor in the College of Electronic Engineering at South China Agricultural University and a Guest Associate Professor at Nagoya Institute of Technology. His research interests include electromagnetic dosimetry modeling, bioelectromagnetics, and electromagnetic compatibility.

He is Co-Chair of Subcommittee 6 of the IEEE International Committee on Electromagnetic Safety Technical Committee 95 and a member of the Scientific Expert Group of the International Commission on Non-Ionizing Radiation Protection. He received the Young Scientist Award from URSI GASS 2020 and the IEEE EMC Society Motohisa Kanda Award in 2025.

For more details:

<https://yinliangdiao.weebly.com/>