

KEYNOTE TALK

Electromagnetic Compatibility Simulations for Air, Sea, and Ground Platforms

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Abstract –

Electromagnetic compatibility (EMC) is a critical part of platform design in the defense industry. Numerical simulation for EMC problems - such as radiation or crosstalk at cable harnesses - can help to identify and analyze potential EMC issues at an early stage and find corrective actions. This talk will present simulation methodologies involved for identification and mitigation of such EMC issues. When designing complex systems, compliance with electromagnetic radiation hazard standards (e.g., ICNIRP 2020) must be ensured. This talk will also describe methods for shielding effectiveness analysis as well as the hazards of electromagnetic radiation to personnel (HERP), ordnance (HERO), and fuel (HERF) and how this can be mitigated through numerical simulations.

Speaker:



Dr. C.J. Reddy is the Vice President, Business Development-Electromagnetics for Americas at Altair. Dr. Reddy was a research fellow at the Natural Sciences and Engineering Research Council (NSERC) of Canada and was awarded the US National Research Council (NRC) Resident Research Associateship at NASA Langley Research Center. While conducting research at NASA Langley, he developed various computational codes for electromagnetics. He also worked as Research Professor at Hampton University from 1995 to 2000. Dr. Reddy was the President of Applied EM, Inc (2000-2017) where he led several Phase I and Phase II SBIR projects for the DoD and NASA. He was also the President of EM Software & Systems (USA) Inc (2002-2014) and led the marketing of the EM Simulation tool, Feko in North America. EM Software & Systems (USA) Inc was acquired by Altair in 2014.

Dr. Reddy is a Fellow of IEEE, Fellow of ACES (Applied Computational Electromagnetics Society) and a Fellow of AMTA (Antenna Measurement Techniques Association). Dr. Reddy is a co-author of the book, "Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software," published in June 2014 by SciTech Publishing (now part of IET). Dr. Reddy served as a member of AMTA Board of Directors for a three-year term (2020-2022) and served as the Technical Coordinator for AMTA 2020 and AMTA 2021 Conferences as well as the President in 2022 and served as the Past President of AMTA in 2023. Dr. Reddy also served on the ACES Board of Directors and served as the Vice President of ACES (2023-2024). Dr. Reddy served on the IEEE Fellows Committee for the terms 2020-2021 and 2022-2023. Dr. Reddy served as an Associate Editor for IEEE Open Journal of Antennas and Propagation and IEEE Transactions on Antennas and Propagation. He served as the Chair of IEEE Antennas and Propagation Society (AP-S) Young Professionals Committee (2021-2024) and served on the AP-S AdCom (2022-2024). Dr. Reddy is now serving as the 2025 IEEE AP-S President-Elect. Dr. Reddy is inducted into IEEE Heritage Circle by the IEEE Foundation for establishing the "*IEEE AP-S CJ Reddy Travel Grant for Graduate Students.*"