

Introduction to Transmission Lines and Waveguides



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Abstract:

The course covers applications of electromagnetic theory to passive microwave components and systems. Specifically, transmission lines and rectangular metallic waveguides will be discussed. The goal of the course is to 1) Understand the tradeoffs between electromagnetic and circuit approaches; 2) Develop an intuitive understanding of transmission lines and waveguides; 3) Introduce students to commercially available microwave engineering simulation toolboxes.

Bio:

Dr. Ghalichechian is the Director of the [mmWave Antennas and Arrays Laboratory](#). His research focuses on millimeter-wave (mmWave) phased arrays, reconfigurable antennas, reflectarrays, transmitarrays, on-chip antennas, phase-change materials, non-reciprocal microwave devices, high-power arrays, and mmWave measurement techniques.

Dr. Ghalichechian received his B.S. degree in electrical engineering from Amirkabir University of Technology (Tehran Polytechnic), Iran, in 2001. He received his M.S. and Ph.D. degrees in electrical engineering from the University of Maryland, College Park, MD, USA, in 2005 and 2007, respectively. From 2007 to 2012, he was with the Research Department, FormFactor, Inc., Livermore, CA, USA, as a Senior Principal Engineer. He joined the Department of Electrical and Computer Engineering (ECE) and the ElectroScience Laboratory, The Ohio State University (OSU), Columbus, OH, USA, as a Research Scientist in 2012, held a Research Assistant Professor position from 2016 to 2017, and was a tenure-track Assistant Professor at OSU from 2017 to 2021. In August 2021, he joined the School of ECE, Georgia Tech, Atlanta, GA, USA, as an Assistant Professor. He became a tenured Associate Professor in 2024.

Prof. Ghalichechian is an IEEE Senior Member and an active member of the IEEE Antennas and Propagation Society ([AP-S](#)). He currently serves on the Technical Committee on

Antenna Arrays and Systems (TC2). He was an Associate Editor of the IEEE Transactions on Antennas and Propagation (2022–2025) and an Associate Editor of the IEEE Antennas and Wireless Propagation Letters (2019–2022).