

RF Circuit Design (ECE321/ECE521) Project Themes

- **Wireless Power Transfer (WPT)**

Reference:

H. Hekal, H. Jia, A. Allam, A. Barakat, and R. Pokharel, "A Novel Technique for Compact Size Wireless Power Transfer Applications Using Defected Ground Structures", IEEE Transactions on Microwave Theory and Techniques. (Available as early access on IEEE Xplore)

Y. Huang, N. Shinohara, and T. Mitani, "Impedance Matching in Wireless Power Transfer," IEEE Transactions on Microwave Theory and Techniques. (Available as early access on IEEE Xplore)

- **Multi-Frequency Impedance Matching**

References:

M. A. Maktoomi, M. Akbarpour, M. S. Hashmi, and F. M. Ghannouchi, "A Theorem for Multi-Frequency DC Feed Network Design," IEEE Microwave and Wireless Component Letter (MWCL), Vol. 26, Issue. 9, pp. 648-650, Sept. 2016.

M. A. Maktoomi, M. S. Hashmi, and F. M. Ghannouchi, "Improving Load Range of Dual-Band Impedance Matching Networks using Novel Load-Healing Concept," IEEE Transactions on Circuits and Systems (TCAS - II). (Available as early access on IEEE Xplore)

M. A. Maktoomi, M. S. Hashmi, A. P. Yadav, and V. Kumar, "A Generic Tri-band Impedance Matching Network," IEEE Microwave and Wireless Component Letter, Vol. 26, No. 5, pp. 316-318, May 2016..

- **Multi-band Balun**

Reference:

Y. Wu, L. Yao, W. Zhang, W. Wang, and Y. Liu, "A Planar Dual-band Coupled-Line Balun with Impedance Transformation and High Isolation," IEEE Access. (Available as early access on IEEE Xplore)

- **High Speed and Broad-band Nonlinear Transmission Lines**

Reference:

B. Nouri, M. S. Nakhla, and R. Achar, "Efficient Simulation of Nonlinear Transmission Lines via Model-Order Reduction," IEEE Transactions on Microwave Theory and Techniques. (Available as early access on IEEE Xplore)

- **Other multi-frequency and broad-band passive components such as PD, Coupler, Filter etc:**

References:

R. Zhang, S. Luo, and L. Zhu, "A New Synthesis and Design Method for Wideband Bandpass Filters With Generalized Unit Elements," IEEE Transactions on Microwave Theory and Techniques. (Available as early access on IEEE Xplore)

J. Shi, J. Lu, K. Xu, and J. Chen, "A Coupled-Line Balanced-to-Single-Ended Out-of-Phase Power Divider With Enhanced Bandwidth," IEEE Transactions on Microwave Theory and Techniques. (Available as early access on IEEE Xplore)

M. A. Maktoomi, M. S. Hashmi, and F. M. Ghannouchi, "Theory and Design of a Novel Wide-Band DC Isolated Wilkinson Power Divider," IEEE Microwave and Wireless Component Letter (MWCL), Vol. 26, Issue. 8, pp. 586-588, Aug. 2016.

Z. Qamar, S. Y. Zheng, W. S. Chan, and D. Ho, "An Equal-Length Multiway Differential Metamaterial Phase Shifter," IEEE Transactions on Microwave Theory and Techniques. (Available as early access on IEEE Xplore)

M. A. Maktoomi, M. S. Hashmi, and F. M. Ghannouchi, "Systematic Design Technique for Dual-Band Branch-Line Coupler using T- and Pi-Networks and a Novel Wide Band-Ratio Crossover," IEEE Transactions on Components, Packaging and Manufacturing Technology (TCPMT), Vol. 6, No. 5, pp. 784-795, May 2016.

- **Systems:**

Reference:

S. Gupta, B. Nikfal, and C. Caloz, "RFID System based on Pulse-Position Modulation using Group Delay Engineered Microwave C-Sections," IEEE APMC Conference, 2010.