features

32 Energy Tunneling
A Way to Achieve Highly Sensitive Material Detection With Sub-Wavelength Resolution
Rashad Ramzan, Omar Siddiqui, Muhammad Omar, and Omar M. Ramahi

49 Organically Packaged Components and Modules
Recent Advancements for Microwave and mm-Wave Applications
Asad Ali Nawaz, Wasif Tanveer Khan, and Ahmet Cagri Ulusoy

73 Planar Spoof SPP Transmission Lines
Applications in Microwave Circuits
Hao Chi Zhang, Pei Hang He, Wen Xuan Tang, Yu Luo, and Tie Jun Cui

92 Plans for Planar
Phase-Noise Reduction Techniques in Voltage-Controlled Oscillators
S.M. Kayser Azam, Muhammad I. Ibrahimy, S.M.A. Motakabber, and A.K.M. Zakir Hossain
columns & departments

6 From the Editor’s Desk
- Robert C. Caverly
Welcome to the November Issue

8 President’s Column
- Dominique Schreurs
Update on Member Benefits

11 Awards
- John T. Barr
Józef Modelski: MTT-S Honorary Life Member

15 MicroBusiness
- Fred Schindler
A Positive Use of “No”

16 Microwave Surfing
- Rajeev Bansal
What If?

18 Health Matters
- James C. Lin
The Significance of Primary Tumors in the NTP Study of Chronic Rat Exposure to Cell Phone Radiation

22 Application Notes
- Grigory M. Aristarkhov, Andrei Grebennikov, and Nikita V. Zvezdinov
High-Selectivity Microstrip Filters Based on Structures With a Limited Number of Hairpin Resonators

110 MTT-S Society News
- Thomas Zwicky
IEEE Microwave and Wireless Components Letters: New Four-Page Article Length

111 Conference Report
- Hubregt J. Visser, Paul D. Mitcheson, Lingxin Lan, and Juan Arteaga Saenz
IEEE Wireless Power Week 2019

114 MTT-S Ombuds Officer
- Edward C. Niehenke

116 New Products
- Ken Mays

119 Conference Calendar