

PIERS 2016 Shanghai

Progress In Electromagnetics Research Symposium

Program

August 8 - 11, 2016

Shanghai, CHINA

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- 09:20 Frequency Selective Surface in Millimeter-wave Automotive Radar Radome Applications
Huan Lei Chen (Tongji University); Li Bo Huang (Tongji University); Mei Song Tong (Tongji University);
- 09:40 A Nystrom Scheme Based on Cuboid Elements for Solving Volume Integral Equations
Zhi Guo Zhou (Tongji University); Mei Song Tong (Tongji University);
- 10:00 **Coffee Break**
- 10:20 Transient Analysis for Electromagnetic Scattering by Dielectric Objects Based on PMCHWT Equations
Peng Cheng Wang (Tongji University); Mei Song Tong (Tongji University);
- 10:40 A Microwave Imaging Chamber Using Bowtie Antennas for Biomedical Applications
Muhammad Hassan Khalil (Tsinghua University); Maokun Li (Tsinghua University); Fan Yang (Tsinghua University); Shenheng Xu (Tsinghua University);
- 11:00 Numerical Modeling of the Interaction of Laser Beams with Plasma at the Entrance Hole of ICF Hohlraum
Zhili Lin (Huaqiao University); Jixiong Pu (Huaqiao University);
- 11:20 Hybrid T -matrix Modeling of Electromagnetic Scattering from Simplified Leaf Structures
Paul Jason Co (Tokyo Institute of Technology); Jun-Ichi Takada (Tokyo Institute of Technology);
- 11:40 Statistical Moments of Scattered Ordinary and Extraordinary Waves in the Turbulent Plasma
George Vakhtang Jandieri (Georgian Technical University); Zh. M. Diasamidze (Batumi Shota Rustaveli State University); M. R. Diasamidze (Batumi State Maritime Academy); Ioseb Aleksandr Nemsadze (Batumi Shota Rustaveli State University);
- 08:00 A Dual-band Balanced Amplifier with CRLH Transmission Lines Fully Implemented
Jongsik Lim (Soonchunhyang University); Qi Wang (Chonbuk National University); Yongchae Jeong (Chonbuk National University);
- 08:20 Radial Uniform Circular Antenna Array for Dual-mode OAM Communication
Zhi-Gui Guo (Fudan University); Guo-Min Yang (Fudan University); Yu Fu (Fudan University);
- 08:40 RF/Microwave Processing in RF Systems
Sang-Min Han (Soonchunhyang University); Seok Jae Lee (Soonchunhyang University); Won-Sang Yoon (Hoseo University);
- 09:00 **A Design of Phase Shifter with Constant Insertion Loss**
Seungho Jeong (Chonbuk National University); Boram An (Chonbuk National University); Phirun Kim (Chonbuk National University); Yongchae Jeong (Chonbuk National University); Jongsik Lim (Soonchunhyang University);
- 09:20 Low Noise Figure CMOS 2-Port Active Inductor Using LC Resonator
Jageon Koo (Chonbuk National University); Seungwook Lee (Chonbuk National University); Junhyung Jeong (Chonbuk National University); Giridhari Chaudhary (Chonbuk National University); Yongchae Jeong (Chonbuk National University);
- 09:40 A Novel Dual-band Filtering Power Divider with U-section Loaded Resonator
Min-Hong Yang (Zhejiang University); Yun Long Lu (Ningbo University); Kai Li (Zhejiang University);
- 10:00 **Coffee Break**
- 10:20 The Compact Waveguide Filters with Complex Aperture Resonant Diaphragms
Viacheslav V. Zemlyakov (Southern Federal University); Sergey V. Krutiev (Southern Federal University); Anatoliy B. Kleshchenkov (Southern Federal University);
- 10:40 RF Characteristics of SU-8 and Quartz Particle Composite Dielectric for Terahertz Applications
Jung-Mu Kim (Chonbuk National University); Ignacio Llamas-Garro (Centre Tecnologic de Telecomunicacions de Catalunya (CTTC)); Moises Espinosa-Espinosa (Centre Tecnologic de Telecomunicacions de Catalunya); Maolong Ke (Dynex Semiconductor Ltd); Michael J. Lancaster (The University of Birmingham); Marcos T. de Melo (Universidade Federal de Pernambuco);

Session 3A8**Advanced Antenna and RF Circuits Design 1**

Wednesday AM, August 10, 2016

Room 3BOrganized by Malay Ranjan Tripathy, **Yongchae Jeong**

Chaired by Jongsik Lim, Malay Ranjan Tripathy

Session 4P8

Advanced Antenna and RF Circuits Design 2

Thursday PM, August 11, 2016

Room 3B

Organized by Malay Ranjan Tripathy, Yongchae Jeong

Chaired by Malay Ranjan Tripathy, Yongchae Jeong

- 13:00 Design of Lange-Ferrite Circulator for X-band Radar
Desy Yusianor (Universitas Indonesia); Fitri Yuli Zulkifli (University of Indonesia); Eko Tjipto Rahardjo (Universitas Indonesia);
- 13:20 Dual Band Frequency Selective Surface for X-band Applications
Sarika (Amity University Uttar Pradesh); Malay Ranjan Tripathy (Amity University Uttar Pradesh); Daniel Ronnow (University of Gavle);
- 13:40 Gap Coupled Half Circular Disk Patch Antenna Using D.G.S for Dual-wideband Application
Nagendra Prasad Yadav (Nanjing University of Science and Technology); Xuefeng Liu (Nanjing University of Science and Technology); Malay Ranjan Tripathy (Amity University Uttar Pradesh);
- 14:00 Design of a High Gain and Low Noise CMOS Folded Mixer for 5 GHz with Low Power Consumption
Yi Li (Hunan University); Chunhua Wang (Hunan University);
- 14:20 Novel Single Layer Proximity Fed Microstrip Patch Array with Gap Coupled Resonators
Jacob Abraham (Mahatma Gandhi University Regional Center); Thomaskutty Mathew (Mahatma Gandhi University Regional Center);
- 14:40 Ultra Wideband Signal Detection with a Schottky Diode Based Envelope Detector
Simon Rommel (Technical University of Denmark); Bruno Cimoli (Technical University of Denmark); G. Silva Valdecasa (Technical University of Denmark); Jesper Bevensee Jensen (Technical University of Denmark); Tom Keinicke Johansen (Technical University of Denmark); Juan Jose Vegas Olmos (Technical University of Denmark); Idelfonso Tafur Monroy (Technical University of Denmark);
- 15:00 Reduction of Mutual Coupling between Closely Spaced Microstrip Antennas with H-shaped Isolation Wall
Chan-Hee Park (Chonbuk National University); Eun-Suk Yang (Chonbuk National University); Hae-Won Son (Chonbuk National University);
- 15:20 Coffee Break
- 15:40 Novel UWB Slotted I-shaped Flexible Microstrip Patch Antenna Design for Satellite Reconnaissance, Amateur Radio, Future Soil Moisture and Sea Surface Salinity Missions
Nitika (Punjabi University); Maninder Singh (Punjabi University); Aman Nag (Punjabi University); Ameet Kaur (Punjabi University); Aastha (Punjabi University); Simarjit Singh Saini (Punjabi University); Ekambir Sidhu (Punjabi University);
- 16:00 A Broadband Reflectarray Antenna Based on Perforated Dielectric Laminates
Yingran He (Zhejiang University); Zhiming Gao (The 54th Research Institute of China Electronic Technology Corporation); Biao Du (The 54th Research Institute of China Electronic Technology Corporation);
- 16:20 Applying X-parameter to the Design and Comparison of 24-GHz Fundamental and Subharmonic Quadrature Passive Mixers
Lai He (Fudan University); Wei Li (Fudan University);
- 16:40 Novel Stacked Patch Array Antenna with Embedded Defective Ground Structure for Wireless Applications
S. Sreenath Kashyap (Marwadi Education Foundation); Ved Vyas Dwivedi (Gujarat Technological University); Y. P. Kosta (Marwadi Education Foundation);
- 17:00 A Dual Polarization Reconfigurable Patch Antenna for Frequency Diversity
Xing Yun Zhang (Beijing Institute of Technology); Wu Ren (Beijing Institute of Technology); Wei-Ming Li (Beijing Institute of Technology); Zheng-Hui Xue (Beijing Institute of Technology);
- 17:20 A Dual Frequency Reconfigurable Patch Antenna for Polarization Diversity
Xing Yun Zhang (Beijing Institute of Technology); Wu Ren (Beijing Institute of Technology); Wei-Ming Li (Beijing Institute of Technology); Zheng Hui Xue (Beijing Institute of Technology);
- 17:40 A Mathematical Model for Energy Efficient SDN/NFV Using Autonomic Network Intelligence
Huned Materwala (Amity University); Varsha Jain (IIT Mandi); Priya Ranjan (Amity University Uttar Pradesh);
- 18:00 Elliptic Function Based Band Pass mm Wave Filter for Wireless Communication
Manish Sharma (Amity University Uttar Pradesh); Malay Ranjan Tripathy (Amity University Uttar Pradesh); Priya Ranjan (Amity University Uttar Pradesh); Yongchae Jeong (Chonbuk National University);

A Design of Phase Shifter with Constant Insertion Loss

Seungho Jeong¹, Boram An¹, Phirun Kim¹, Yongchae Jeong¹, and Jongsik Lim²

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²Soonchunhyang University, Republic of Korea

Abstract— Analog phase shifters are widely used in radar systems and communication systems to achieve linear phase control. To obtain linear phase control in 1-port network, a phase shifter is required constant return loss variation. Normally the phase shifting characteristic be obtained by variation of junction capacitance of varactor diode. The core circuit of the proposed reflection type phase shifter (RTPS) consists of single varactor diode and $\lambda/4$ transmission line terminated two varactor diodes. The return loss variation of the proposed phase shifter can be minimized by controlling the impedance of the transmission line. To obtain constant return loss over the phase variation of core circuit, the characteristic impedance of transmission line must be selected by parasitic components of varactor diode. Parasitic components of the varactor diodes can be extracted by Deloach method. Two core circuits are used at through and coupling ports of the proposed RTPS and the isolation port is open. RTPS is composed of 90° hybrid coupler and termination load. For an experimental validation, RTPS was fabricated on epoxy substrate with a dielectric constant (ϵ_r) of 4.4 and a thickness (h) of 31 mils at 2.14 GHz. The SMV 1233-011LF varactor diode and S03A2500N1 90° hybrid coupler are used. As shown the Fig. 1, the phase variation of the fabricated phase shifter is 358.21° with the insertion loss variation of -2.27 ± 0.19 dB. Fig. 2 shows measured phase results on the rectangular chart.

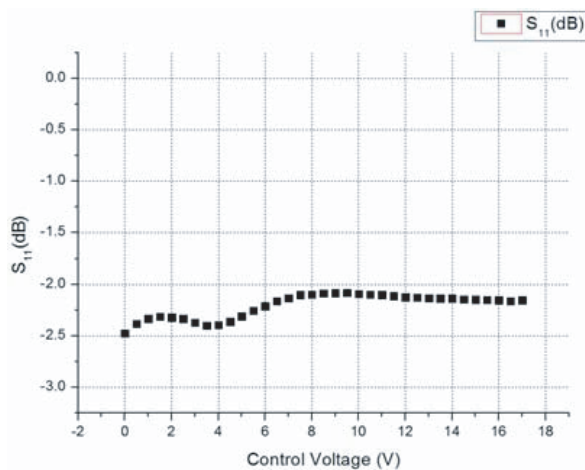


Figure 1.

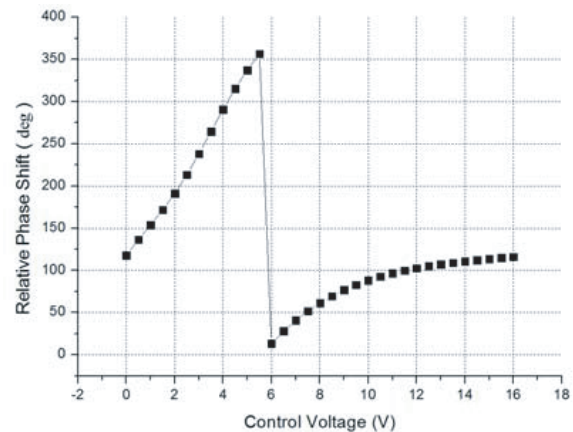


Figure 2.