

FREQUENZ

JOURNAL OF RF/MICROWAVE ENGINEERING,
PHOTONICS AND COMMUNICATIONS

EDITOR-IN-CHIEF

Rolf Jakoby, Darmstadt

EDITORIAL ASSISTANTS

Andreas Penirschke, Friedberg

Eleonore Titow, Darmstadt

EDITORIAL BOARD

Axel Bangert, Kassel

Ranjan Bose, Delhi

Christian Damm, Ulm

Ivan B. Djordjevic, Arizona

Philippe Ferrari, Grenoble

Rüdiger Follmann, Kamp-Lintfort

Piotr Gas, Krakow

Ingo Gaspard, Darmstadt

Jan Hesselbarth, Stuttgart

Klaus Hofmann, Darmstadt

Michael Höft, Kiel

Friedrich Jondral, Karlsruhe

Anja Klein, Darmstadt

Alex Kölpin, Cottbus

Thomas Kusserow, Darmstadt

Rolf Kraemer, Frankfurt (Oder)

Thomas Kürner, Braunschweig

Wolfgang Menzel, Ulm

David Pouhè, Reutlingen

Sascha Preu, Darmstadt

Hermann Rohling, Hamburg-Harburg

Lorenz-Peter Schmidt, Erlangen-Nürnberg

Reiner S. Thomä, Ilmenau

Martin Vossiek, Erlangen-Nürnberg

Robert Weigel, Erlangen-Nürnberg

DE GRUYTER

FREQUENZ was first published in 1947 with a circulation of 7000 copies, focusing on Telecommunications. Today, the major aim of Frequenz is to highlight current research activities and development efforts in RF/Microwave Engineering, Photonics and Communications throughout a wide frequency spectrum ranging from radio and microwave frequencies via THz and the infrared up to optical frequencies.

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at www.degruyter.de/freq

ABSTRACTED/INDEXED IN Astrophysics Data System (ADS) · Baidu Scholar · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC: cnpLINKer · Compendex · Dimensions · EBSCO (relevant databases) · EBSCO Discovery Service · Engineering Village · Genamics JournalSeek · Google Scholar · Inspec · Japan Science and Technology Agency (JST) · J-Gate · Journal Citation Reports/Science Edition · JournalGuide · JournalTOCs · KESLI-NDSL (Korean National Discovery for Science Leaders) · Microsoft Academic · Naviga (Softweco) · Primo Central (ExLibris) · ProQuest (relevant databases) · Publons · QOAM (Quality Open Access Market) · ReadCube · Reaxys · SCImago (SJR) · SCOPUS · Sherpa/RoMEO · Summon (Serials Solutions/ProQuest) · TDNet · TEMA Technik und Management · Ulrich's Periodicals Directory/ulrichsweb · WanFang Data · Web of Science: Current Contents/Engineering, Computing, and Technology; Science Citation Index Expanded · WorldCat (OCLC)

ISSN 0016-1136 · e-ISSN 2191-6349

RESPONSIBLE EDITOR Prof. Dr.-Ing. Rolf Jakoby, Institute of Microwave Engineering and Photonics, Technische Universität Darmstadt, Merckstrasse 25, 64283 Darmstadt, Germany. Tel.: +49 (0) 6151-16-28460, Email: frequenz@imp.tu-darmstadt.de

JOURNAL MANAGER Dawid Wieczorek, De Gruyter, Genthiner Str. 13, 10785 Berlin, Germany, Tel.: +48 507 812 005, Email: Dawid.Wieczorek@degruyter.com

RESPONSIBLE FOR ADVERTISEMENTS Claudia Neumann, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany. Tel.: +49 (0)30 260 05-226, Fax: +49 (0) 30 260 05-264, Email: anzeigen@degruyter.com

© 2019 Walter de Gruyter GmbH, Berlin/Boston

TYPESETTING Integra Software Services Pvt. Ltd., Pondicherry, India.

PRINTING Franz X. Stücker Druck und Verlag e.K., Ettenheim



Offenlegung der Inhaber und Beteiligungsverhältnisse gem. § 7a Abs. 1 Ziff. 1, Abs. 2 Ziff. 3 des Berliner Pressegesetzes: Die Gesellschafter der Walter de Gruyter GmbH sind: Cram, Gisela, Rentnerin, Berlin; Cram, Elsbeth, Pensionärin, Rosengarten-Alvesen; Cram, Dr. Georg-Martin, Unternehmens-Systemberater, Stadtbergen; Cram, Maike, Wien (Österreich); Cram, Jens, Mannheim; Cram, Ingrid, Betriebsleiterin, Tuxpan/Michoacan (Mexiko); Cram, Sabina, Mexico, DF (Mexiko); Cram, Silke, Wissenschaftlerin, Mexico DF (Mexiko); Cram, Björn, Aachen; Cram, Berit, Hamm; Cram-Gomez, Susana, Mexico DF (Mexiko); Cram-Heydrich, Walter, Mexico DF (Mexiko); Cram-Heydrich, Kurt, Angestellter, Mexico DF (Mexiko); Duvenbeck, Brigitta, Oberstudienrätin i.R., Bad Homburg; Gädeke, Gudula, M.A., Atemtherapeutin/Lehrerin, Tübingen; Gädeke, Martin, Student, Ingolstadt; Gomez Cram, Arturo Walter, Global Key Account Manager, Bonn, Gomez Cram, Ingrid Arlene, Studentin, Mexico, DF (Mexiko), Gomez Cram, Robert, Assistant Professor, Sondon UK, Lubasch, Dr. Annette, Ärztin, Berlin; Schütz, Dr. Christa, Ärztin, Mannheim; Schütz, Sonja, Diplom.-Betriebswirtin (FH), Berlin; Schütz, Juliane, Berlin; Schütz, Antje, Berlin; Schütz, Valentin, Mannheim; Seils, Dorothee, Apothekerin, Stuttgart; Seils, Gabriele, Journalistin, Berlin; Seils, Christoph, Journalist, Berlin; Siebert, John-Walter, Pfarrer, Oberstenfeld; Anh Vinh Alwin Tran, Zürich (Schweiz), Tran, Renate, Mediatorin, Zürich (Schweiz).

Contents

Research Articles

Ali Alhaj Abbas, Mohammed El-Absi, Ashraf Abuelhaija, Klaus Solbach and Thomas Kaiser

Wide-Angle RCS Enhanced Tag Based on Dielectric Resonator – Lens Combination — 1

Reza Talebzadeh, Farhad Mehdizadeh and Ali Naseri
4-Channel Tunable Optical Demultiplexer Based on Nonlinearity Phenomenon in 2D Resonant Cavity Photonic Crystals — 9

Robert Mark and Soma Das

Near Zero Parameter Metamaterial Inspired Superstrate for Isolation Improvement in MIMO Wireless Application — 17

Fei Wang

A Tri-band Angularly Stable Frequency Selective Surface with Controllable Resonances for EM Shielding — 25

Changying Wu, Congxiang Li, Chufeng Hu and Yevhen Yashchyshyn

Dual-Polarization and Low-Sidelobe Corrugated Rectangular Horn Antennas for Outdoor RCS Measurement — 33

Alka Verma, Anil Kumar Singh, Neelam Srivastava and Binod Kumar Kanaujia

Circularly Polarized Microstrip Antenna Using SLPD Electromagnetic Band Gap Structure — 41

Qingchun Cao, Hui Liu and Li Gao

Design of Novel Compact Quad-Band Bandpass Filter with High Selectivity — 53

Shiva Khani, Mohammad Danaie, Pejman Rezaei and Ali Shahzadi

Compact Ultra-Wide Upper Stopband Microstrip Dual-Band BPF Using Tapered and Octagonal Loop Resonators — 61

Sorokhaibam Nilakanta Meitei, Kunal Borah and Saibal Chatterjee

Modelling of Acoustic Wave Propagation Due to Partial Discharge and Its Detection and Localization in an Oil-Filled Distribution Transformer — 73

Vikram Singh, Sandeep Kumar Arya and Manoj Kumar
A 5.7 mW, UWB LNA for Wireless Applications Using Noise Canceling Technique in 90 nm CMOS — 83