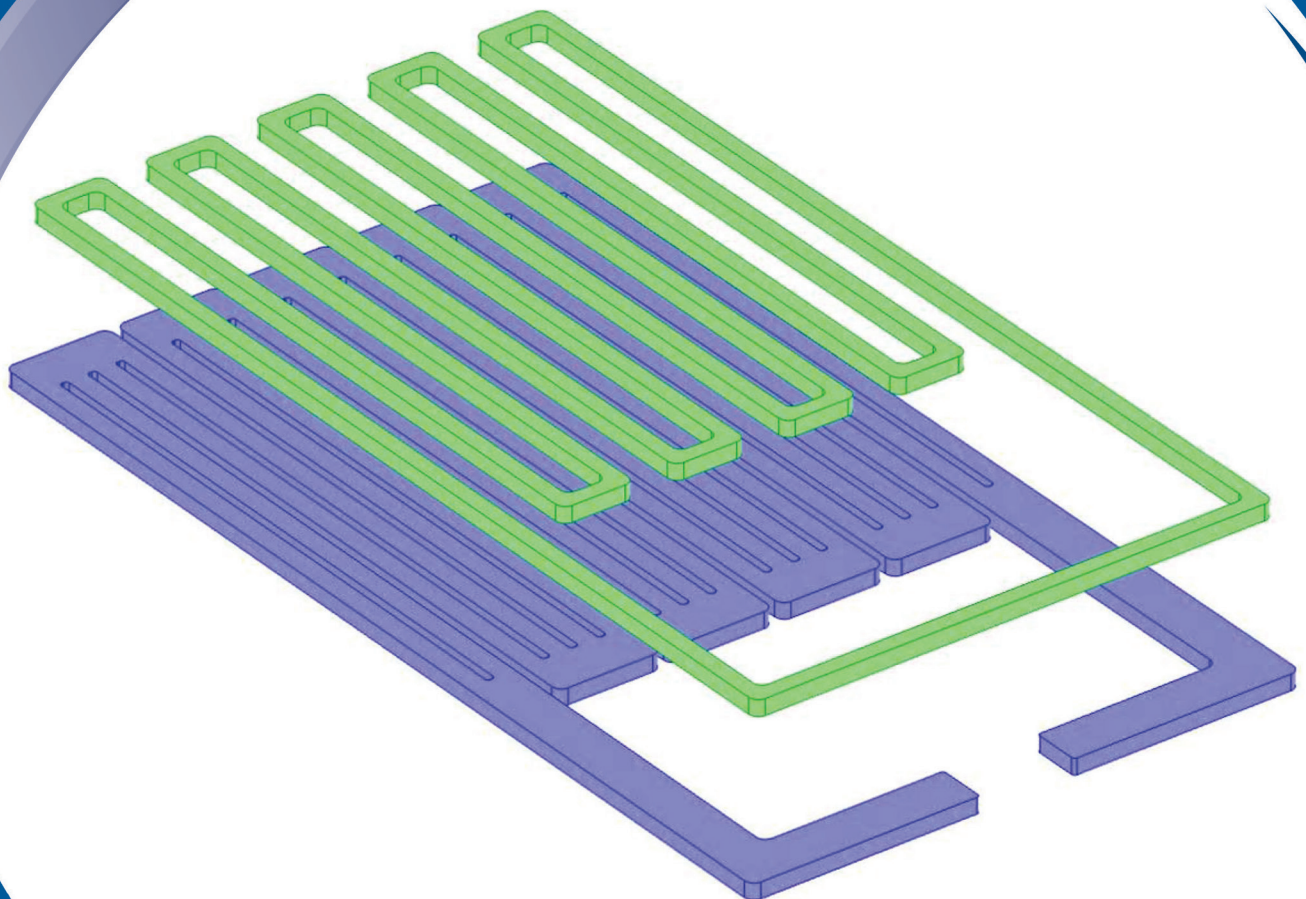


ISSN 0352-9045

Informacije MIDEM

*Journal of Microelectronics,
Electronic Components and Materials*
Vol. 45, No. 2 (2015), June 2015

*Revija za mikroelektroniko,
elektronske sestavne dele in materiale*
letnik 45, številka 2 (2015), Junij 2015



Informacije MIDE M 2-2015

Journal of Microelectronics, Electronic Components and Materials

VOLUME 45, NO. 2(154), LJUBLJANA, JUNE 2015 | LETNIK 45, NO. 2(154), LJUBLJANA, JUNIJ 2015

Published quarterly (March, June, September, December) by Society for Microelectronics, Electronic Components and Materials - MIDE M.
Copyright © 2014. All rights reserved. | Revija izhaja trimesečno (marec, junij, september, december). Izdaja Strokovno društvo za mikroelektroniko, elektronske sestavne dele in materiale – Društvo MIDE M. Copyright © 2014. Vse pravice pridržane.

Editor in Chief | Glavni in odgovorni urednik

Marko Topič, University of Ljubljana (UL), Faculty of Electrical Engineering, Slovenia

Editor of Electronic Edition | Urednik elektronske izdaje

Kristijan Brecl, UL, Faculty of Electrical Engineering, Slovenia

Associate Editors | Odgovorni področni uredniki

Vanja Ambrožič, UL, Faculty of Electrical Engineering, Slovenia
Slavko Amon, UL, Faculty of Electrical Engineering, Slovenia
Danjela Kuščer Hrovatin, Jožef Stefan Institute, Slovenia
Matjaž Vidmar, UL, Faculty of Electrical Engineering, Slovenia
Andrej Žemva, UL, Faculty of Electrical Engineering, Slovenia

Editorial Board | Uredniški odbor

Mohamed Akil, ESIEE PARIS, France
Giuseppe Buja, University of Padova, Italy
Gian-Franco Dalla Betta, University of Trento, Italy
Martyn Fice, University College London, United Kingdom
Ciprian Iliescu, Institute of Bioengineering and Nanotechnology, A*STAR, Singapore
Malgorzata Jakubowska, Warsaw University of Technology, Poland
Marc Lethiecq, University of Tours, France
Teresa Orłowska-Kowalska, Wrocław University of Technology, Poland
Luca Palmieri, University of Padova, Italy

International Advisory Board | Časopisni svet

Janez Trontelj, UL, Faculty of Electrical Engineering, Slovenia - Chairman
Cor Claeys, IMEC, Leuven, Belgium
Denis Donlagič, University of Maribor, Faculty of Elec. Eng. and Computer Science, Slovenia
Zvonko Fazarinc, CIS, Stanford University, Stanford, USA
Leszek J. Golonka, Technical University Wrocław, Wrocław, Poland
Jean-Marie Haussonne, EIC-LUSAC, Octeville, France
Barbara Malič, Jožef Stefan Institute, Slovenia
Miran Mozetič, Jožef Stefan Institute, Slovenia
Stane Pejovnik, UL, Faculty of Chemistry and Chemical Technology, Slovenia
Giorgio Pignatelli, University of Perugia, Italy
Giovanni Soncini, University of Trento, Trento, Italy
Iztok Šorli, MIKROIKS d.o.o., Ljubljana, Slovenia
Hong Wang, Xi'an Jiaotong University, China

Headquarters | Naslov uredništva

Uredništvo Informacije MIDE M
MIDE M pri MIKROIKS
Stegne 11, 1521 Ljubljana, Slovenia
T. +386 (0)1 513 37 68
F. + 386 (0)1 513 37 71
E. info@midem-drustvo.si
www.midem-drustvo.si

Annual subscription rate is 100 EUR, separate issue is 25 EUR. MIDE M members and Society sponsors receive current issues for free. Scientific Council for Technical Sciences of Slovenian Research Agency has recognized Informacije MIDE M as scientific Journal for microelectronics, electronic components and materials. Publishing of the Journal is cofinanced by Slovenian Book Agency and by Society sponsors. Scientific and professional papers published in the journal are indexed and abstracted in COBISS and INSPEC databases. The Journal is indexed by ISI® for Sci Search®, Research Alert® and Material Science Citation Index™. |

Letna naročnina je 100 EUR, cena posamezne številke pa 25 EUR. Člani in sponzorji MIDE M prejema posamezne številke brezplačno. Znanstveni svet za tehnične vede je podal pozitivno mnenje o reviji kot znanstveno-strokovni reviji za mikroelektroniko, elektronske sestavne dele in materiale. Izdajo revije sofinancirajo JAKRS in sponzorji društva. Znanstveno-strokovne prispevke objavljene v Informacijah MIDE M zajemamo v podatkovne baze COBISS in INSPEC. Prispevke iz revije zajema ISI® v naslednje svoje produkte: Sci Search®, Research Alert® in Materials Science Citation Index™.

Po mnenju Ministrstva za informiranje št.23/300-92 se šteje glasilo Informacije MIDE M med proizvode informativnega značaja.

Content | Vsebina

<i>Original scientific paper</i>		<i>Izvirni znanstveni članki</i>
M. E Bařak, F. Kařar: A New Fully Integrated High Frequency Full-Wave Rectifier Realization	101	M. E Bařak, F. Kařar: Nov polno integriran visokofrekvenčni polnovalni usmernik
K. Górecki, J. Zarębski, D. Bisewski: An Influence of the Selected Factors on the Transient Thermal Impedance Model of Power MOSFET	110	K. Górecki, J. Zarębski, D. Bisewski: Vpliv določenih faktorjev na tranzienten termično impedančen model močnostnega MOSFET
P. B. Petrović: Electronically Controllable Current-Mode True RMS to DC Converter	117	P. B. Petrović: Elektronsko nadzorovan RMS DC pretvornik v tokovnem načinu
B. Wang, Y. Zhuang, X. Li: A Novel Dual Ports Antenna for Handheld RFID Reader Applications	125	B. Wang, Y. Zhuang, X. Li: Nova dvovhodna antenna za ročne RFID bralnike
S. M. Djurić, N. M. Djurić, M. S. Damnjanović: The Optimal Useful Measurement Range of an Inductive Displacement Sensor	132	S. M. Djurić, N. M. Djurić, M. S. Damnjanović: Optimalno uporabno območje induktivnega senzorja premika
V. Sklyarov, I. Skliarova, A. Rjabov, A. Sudnitson: Zynq-based System for Extracting Sorted Subsets from Large Data Sets	142	V. Sklyarov, I. Skliarova, A. Rjabov, A. Sudnitson: Sistem na osnovi Zynq za izluščitev razvrščenih podsklopov iz obsežnih podatkovnih sklopov
A. A. Demidov, O. A. Kalashnikov, A. Y. Nikiforov, A. S. Tararaksin, V. A. Telets: Radiation Behavior and Test Specifics of A-D and D-A Converters	153	A. A. Demidov, O. A. Kalashnikov, A. Y. Nikiforov, A. S. Tararaksin, V. A. Telets: Sevalno obnašanje in testne posebnosti A-D in D-A pretvornikov
Á. Búrmen, H. Habal: Computing Worst-Case Performance and Yield of Analog Integrated Circuits by Means of Mesh Adaptive Direct Search	160	Á. Búrmen, H. Habal: Določanje najslabših lastnosti in izplena analognih integriranih vezij z adaptivnim mrežnim direktnim optimizacijskim postopkom
Announcement and Call for Papers: 51st International Conference on Microelectronics, Devices and Materials With the Workshop on Terahertz and Microwave Systems	171	Napoved in vabilo k udeležbi: 51. Mednarodna konferenca o mikroelektroniki, napravah in materialih z delavnico o teraherzskih in mikrovalovnih sistemih
Front page: The sensor element, detecting normal displacement (S. Djurić et al.)		Naslovnica: Senzorski element za detektiranje normalnega premika (S. Djurić et al.)

Boards of MIDEM Society | *Organi društva MIDEM*

MIDEM Executive Board | Izvršilni odbor MIDEM

President of the MIDEM Society | Predsednik društva MIDEM

Prof. Dr. Marko Topič, University of Ljubljana, Faculty of Electrical Engineering, Slovenia

Vice-presidents | Podpredsednika

Prof. Dr. Barbara Malič, Jožef Stefan Institute, Ljubljana, Slovenia

Dr. Iztok Šorli, MIKROIKS, d. o. o., Ljubljana, Slovenija

Secretary | Tajnik

Olga Zakrajšek, UL, Faculty of Electrical Engineering, Ljubljana, Slovenija

MIDEM Executive Board Members | Člani izvršilnega odbora MIDEM

Prof. Dr. Slavko Amon, UL, Faculty of Electrical Engineering, Ljubljana, Slovenia

Darko Belavič, In.Medica, d.o.o., Šentjernej, Slovenia

Prof. Dr. Bruno Cvikl, UM, Faculty of Civil Engineering, Maribor, Slovenia

Prof. DDr. Denis Đonlagič, UM, Faculty of Electrical Engineering and Computer Science, Maribor, Slovenia

Prof. Dr. Leszek J. Golonka, Technical University Wroclaw, Poland

Leopold Knez, Iskra TELA d.d., Ljubljana, Slovenia

Dr. Miloš Komac, UL, Faculty of Chemistry and Chemical Technology, Ljubljana, Slovenia

Prof. Dr. Miran Mozetič, Jožef Stefan Institute, Ljubljana, Slovenia

Jožef Perne, Zavod TC SEMTO, Ljubljana, Slovenia

Prof. Dr. Giorgio Pignatelli, University of Perugia, Italia

Prof. Dr. Janez Trontelj, UL, Faculty of Electrical Engineering, Ljubljana, Slovenia

Supervisory Board | Nadzorni odbor

Prof. Dr. Franc Smole, UL, Faculty of Electrical Engineering, Ljubljana, Slovenia

Mag. Andrej Piriš, Iskra-Zaščite, d. o. o., Ljubljana, Slovenia

Dr. Slavko Bernik, Jožef Stefan Institute, Ljubljana, Slovenia

Court of honour | Častno razsodišče

Emer. Prof. Dr. Jože Furlan, UL, Faculty of Electrical Engineering, Slovenia

Prof. Dr. Radko Osredkar, UL, Faculty of Computer and Information Science, Slovenia

Franc Jan, Kranj, Slovenia

Informacije MIDE
Journal of Microelectronics, Electronic Components and Materials
ISSN 0352-9045

Publisher / Založnik:
MIDEM Society / Društvo MIDE
Society for Microelectronics, Electronic Components and Materials, Ljubljana, Slovenia
Strokovno društvo za mikroelektroniko, elektronske sestavne dele in materiale, Ljubljana, Slovenija

www.midem-drustvo.si