

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, Lancaster, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Friedemann Mattern

ETH Zurich, Zurich, Switzerland

John C. Mitchell

Stanford University, Stanford, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

C. Pandu Rangan

Indian Institute of Technology Madras, Chennai, India

Bernhard Steffen

TU Dortmund University, Dortmund, Germany

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbrücken, Germany


More information about this series at <http://www.springer.com/series/7411>


Olga Galinina · Sergey Andreev
Sergey Balandin · Yevgeni Koucheryavy (Eds.)


Internet of Things, Smart Spaces, and Next Generation Networks and Systems


18th International Conference, NEW2AN 2018
and 11th Conference, ruSMART 2018
St. Petersburg, Russia, August 27–29, 2018
Proceedings

Editors

Olga Galinina 
Tampere University of Technology
Tampere
Finland

Sergey Andreev 
Tampere University of Technology
Tampere
Finland

Sergey Balandin 
FRUCT Oy
Helsinki
Finland

Yevgeni Koucheryavy 
Tampere University of Technology
Tampere
Finland

ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-030-01167-3 ISBN 978-3-030-01168-0 (eBook)
<https://doi.org/10.1007/978-3-030-01168-0>

Library of Congress Control Number: 2018955422

LNCS Sublibrary: SL5 – Computer Communication Networks and Telecommunications

© Springer Nature Switzerland AG 2018, corrected publication 2018

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

We welcome you to the joint proceedings of the 18th NEW2AN (Next Generation Teletraffic and Wired/Wireless Advanced Networks and Systems) and 11th Conference on Internet of Things and Smart Spaces ruSMART (Are You Smart) held in St. Petersburg, Russia, during August 27–29, 2018.

Originally, the NEW2AN conference was launched by ITC (International Teletraffic Congress) in St. Petersburg in June 1993 as an ITC-Sponsored Regional International Teletraffic Seminar. The first edition was entitled “Traffic Management and Routing in SDH Networks” and held by R&D LONIIS. In 2002, the event received its current name, NEW2AN. In 2008, NEW2AN acquired a new companion in Smart Spaces, ruSMART, hence boosting interaction between researchers, practitioners, and engineers across different areas of ICT. From 2012, the scope of ruSMART conference has been extended to cover the Internet of Things and related aspects.

Presently, NEW2AN and ruSMART are well-established conferences with a unique cross-disciplinary mixture of telecommunications-related research and science. NEW2AN/ruSMART is accompanied by outstanding keynotes from universities and companies across Europe, USA, and Russia.

The 18th NEW2AN technical program addressed various aspects of next-generation data networks. This year, special attention was given to advanced wireless networking and applications as well as to lower-layer communication enablers. In particular, the authors demonstrated novel and innovative approaches to performance and efficiency analysis of ad hoc and machine-type systems, employed game-theoretical formulations, Markov chain models, and advanced queuing theory. It is also worth mentioning the rich coverage of graphene and other emerging materials, photonics and optics, generation and processing of signals, as well as business aspects.

The 11th Conference on Internet of Things and Smart Spaces, ruSMART 2018, provided a forum for academic and industrial researchers to discuss new ideas and trends in the emerging areas of the Internet of Things and smart spaces that create new opportunities for fully customized applications and services. The conference brought together leading experts from top affiliations around the world. This year, we saw good participation from representatives of various players in the field, including academic teams and industrial world-leader companies, particularly representatives of Russian R&D centers, which have a good reputation for high-quality research and business in innovative service creation and applications development.

We would like to thank the Technical Program Committee members of both conferences, as well as the associated reviewers, for their hard work and important contribution to the conference. This year, the conference program met the highest quality criteria with an acceptance ratio of around 35%.

The current edition of the conferences was organized in cooperation with National Instruments, IEEE Communications Society Russia Northwest Chapter, YL-Verkot OY, Open Innovations Association FRUCT, Tampere University of Technology, Peter

the Great St. Petersburg Polytechnic University, Peoples' Friendship University of Russia (RUDN University), The National Research University Higher School of Economics (HSE), St. Petersburg State University of Telecommunications, and Popov Society. The conference was held within the framework of the RUDN University Program 5-100.

We also wish to thank all those who contributed to the organization of the conferences. In particular, we are grateful to Nikita Tafintsev and Roman Kovalchukov for their substantial work on supporting the conference website and their excellent job on the compilation of camera-ready papers and interaction with Springer.

We believe that the 18th NEW2AN and 11th ruSMART conferences delivered an informative, high-quality, and up-to-date scientific program. We also hope that participants enjoyed both technical and social conference components, the Russian hospitality, and the beautiful city of St. Petersburg.

August 2018

Olga Galinina
Sergey Andreev
Sergey Balandin
Yevgeni Koucheryavy

Organization

NEW2AN International Advisory Committee

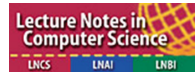
Igor Faynberg	Stargazers Consulting, LLC; Stevens Institute of Technology, USA
Villy B. Iversen	Technical University of Denmark, Denmark
Andrey Koucheryavy	State University of Telecommunications, Russia
Kyu Ouk Lee	ETRI, South Korea
Sergey Makarov	Peter the Great St. Petersburg Polytechnic University, Russia
Svetlana V. Maltseva	National Research University Higher School of Economics, Russia
Mohammad S. Obaidat	Monmouth University, USA
Andrey I. Rudskoy	Peter the Great St. Petersburg Polytechnic University, Russia
Konstantin Samouylov	Peoples' Friendship University of Russia, Russia
Manfred Sneps-Sneppe	Ventspils University College, Latvia
Michael Smirnov	Fraunhofer FOKUS, Germany
Sergey Stepanov	MTUCI, Russia

NEW2AN and ruSMART Technical Program Committee

Naveed Abbasi	Koc University, Turkey
Bayram Akdeniz	Bogazici University, Turkey
Hassen Alsafi	IUM, Malaysia
Baris Atakan	Izmir Institute of Technology, Turkey
Konstantin Avrachenkov	Inria Sophia Antipolis, France
Sergey Balandin	FRUCT Oy, Finland
Michael Barros	Waterford Institute of Technology, Ireland
Kalil Bispo	Federal University of Sergipe, Brazil
Jose Carrera	University of Bern, Switzerland
Paulo Carvalho	Centro Algoritmi, Universidade do Minho, Portugal
Oktay Cetinkaya	Koc University, Turkey
Youssef Chahibi	Georgia Institute of Technology, USA
Wei Koong Chai	Bournemouth University, UK
Ji-Woong Choi	DGIST, South Korea
Chrysostomos Chrysostomou	Frederick University, Cyprus
Meltem Civas	Koc University, Turkey
Gianpaolo Cugola	Politecnico di Milano, Italy
Bruno Dias	Universidade do Minho, Portugal

Roman Dunaytsev	The Bonch-Bruevich St. Petersburg State University of Telecommunications, Russia
Lyndon Fawcett	Lancaster University, UK
Antnio Fernandes	Centro Algoritmi, Universidade do Minho, Portugal
Dieter Fiems	Ghent University, Belgium
Ivan Ganchev	University of Limerick, Ireland
Margarita Gapeyenko	Tampere University of Technology, Finland
Mikhail Gerasimenko	Tampere University of Technology, Finland
Wolfgang Gerstaecker	University of Erlangen-Nuremberg, Germany
Regina Gumenyuk	Tampere University of Technology, Finland
Mustafa Gursoy	Bogazici University, Turkey
Chong Han	Shanghai Jiao Tong University, P.R. China
Matthew Higgins	University of Warwick, UK
Philipp Hurni	University of Bern, Switzerland
Pedram Johari	University at Buffalo (SUNY), USA
Eirini Kalogeiton	University of Bern, Switzerland
Mostafa Karimzadeh	University of Bern, Switzerland
Alexey Kashevnik	SPIIRAS, Russia
Andreas J. Kassler	Karlstad University, Sweden
Tooba Khan	Koc University, Turkey
Geun-Hyung Kim	Dong Eui University, South Korea
Mikhail Komarov	National Research University Higher School of Economics, Russia
Alexey Koren	State University of Aerospace Instrumentation, Russia
Andrey Koucheryavy	SPbSUT, Russia
Kirill Krinkin	St. Petersburg State Electrotechnical University LETI, Russia
Aravindh Krishnamoorthy	University of Erlangen-Nuremberg, Germany
Mark Leeson	University of Warwick, UK
Elena Simona Lohan	Tampere University of Technology, Finland
Nuno Lopes	University of Minho, Portugal
Valeria Loscr	Inria Lille-Nord Europe, France
Ninoslav Marina	Princeton University, USA
Ricardo Martini	University of Minho, Portugal
Daniel Martins	Waterford Institute of Technology, Ireland
Pavel Masek	Brno University of Technology, Czech Republic
Diomidis Michalopoulos	Nokia Bell Labs, Germany
Dmitri Moltchanov	Tampere University of Technology, Finland
Edmundo Monteiro	University of Coimbra, Portugal
Tadashi Nakano	Osaka University, Japan
Shuai Nie	Georgia Institute of Technology, USA
Aleksandr Ometov	Tampere University of Technology, Finland
Antonino Orsino	Oy L M Ericsson AB, Finland
Mustafa Ozger	Koc University, Turkey
Michele Pagano	University of Pisa, Italy
David Perez Abreu	University of Coimbra, Portugal

Dmitry Petrov	Nokia, Finland
Vitaly Petrov	Tampere University of Technology, Finland
Edison Pignaton de Freitas	Federal University of Rio Grande do Sul, Brazil
Alexander Pyattaev	YL Verkot, Finland
Nicholas Race	Lancaster University, UK
Giuseppe Raffa	Intel Corporation, USA
Jos Carlos Ramalho	Universidade do Minho, Portugal
Gianluca Reali	University of Perugia, Italy
Simon Pietro Romano	University of Napoli Federico II, Italy
Andrey Samuylov	Tampere University of Technology, Finland
Robert Schober	University of Erlangen-Nuremberg, Germany
Nikolay Shilov	SPIIRAS, Russia
João Marco Silva	HASLab, INESC TEC and Universidade do Minho, Portugal
Alexander Smirnov	SPIIRAS, Russia
Dmitrii Solomitckii	Tampere University of Technology, Finland
Ales Svigelj	Jozef Stefan Institute, Slovenia
Takeshi Takahashi	National Institute of Information and Communications Technology, Japan
Jouni Tervonen	University of Oulu, Finland
Bige Deniz Unluturk	Georgia Institute of Technology, USA
Anna Maria Vegni	University of Roma 3, Italy
Karima Velasquez	University of Coimbra, Portugal
Chao-Chao Wang	Zhejiang University of Technology, P.R. China
Wei Wei	Xi'an University of Technology, P.R. China
Xin-Wei Yao	Zhejiang University of Technology, P.R. China
Qussai Yaseen	Jordan University of Science and Technology, Jordan
Haiyang Zhang	University of Limerick, Ireland



TAMPERE UNIVERSITY OF TECHNOLOGY

Contents

ruSMART: New Generation of Smart Services

Requirements for Energy Efficient Edge Computing: A Survey.	3
<i>Olli Väänänen and Timo Hämäläinen</i>	
Context-Based Cyclist Intelligent Support: An Approach to e-Bike Control Based on Smartphone Sensors.	16
<i>Alexey Kashevnik, Francesco Pilla, Giovanni Russo, David Timoney, Shaun Sweeney, Robert Shorten, and Rodrigo Ordonez-Hurtado</i>	
Context-Driven Heterogeneous Interface Selection for Smart City Applications	23
<i>Inna Sosunova, Arkady Zaslavsky, Alexey Matvienko, Oleg Sadov, Petr Fedchenkov, and Theodoros Anagnostopoulos</i>	
An Artificial Intelligence Based Forecasting in Smart Parking with IoT	33
<i>Petr Fedchenkov, Theodoros Anagnostopoulos, Arkady Zaslavsky, Klimis Ntalianis, Inna Sosunova, and Oleg Sadov</i>	
On Data Stream Processing in IoT Applications	41
<i>Dmitry Namiot, Manfred Sneps-Sneppe, and Romass Pauliks</i>	
Analysis of Assets for Threat Risk Model in Avatar-Oriented IoT Architecture	52
<i>Ievgeniia Kuzminykh and Anders Carlsson</i>	
State of the Art Literature Review on Network Anomaly Detection with Deep Learning.	64
<i>Tero Bodström and Timo Hämäläinen</i>	
Targeted Digital Signage: Technologies, Approaches and Experiences	77
<i>Kurt Sandkuhl, Alexander Smirnov, Nikolay Shilov, and Matthias Wißotzki</i>	
State of the Art Literature Review on Network Anomaly Detection.	89
<i>Tero Bodström and Timo Hämäläinen</i>	
Creating a Schedule for Parallel Execution of Tasks Based on the Adjacency Lists	102
<i>Yulia Shichkina and Mikhail Kupriyanov</i>	

Measuring a LoRa Network: Performance, Possibilities and Limitations 116
Anders Carlsson, Ievgeniia Kuzminykh, Robin Franksson, and Alexander Liljegren

Testbed for Identify IoT-Devices Based on Digital Object Architecture 129
Mahmood Al-Bahri, Anton Yankovsky, Alexey Borodin, and Ruslan Kirichek

The Application of Graph Theory and Adjacency Lists to Create Parallel Queries to Relational Databases. 138
Yulia Shichkina, Mikhail Kupriyanov, and Vladislav Shevsky

NEW2AN: Next Generation Wired/Wireless Advanced Networks and Systems

On the Necessary Accuracy of Representation of Optimal Signals. 153
Sergey V. Zavjalov, Anna S. Ovsyannikova, and Sergey V. Volvenko

On LDPC Code Based Massive Random-Access Scheme for the Gaussian Multiple Access Channel 162
Anton Glebov, Luiza Medova, Pavel Rybin, and Alexey Frolov

Application of Optimal Finite-Length Signals for Overcoming “Nyquist Limit” 172
Sergey V. Zavjalov, Anna S. Ovsyannikova, Ilya I. Lavrenyuk, Sergey V. Volvenko, and Sergey B. Makarov

Influence of Amplitude Limitation for Random Sequence of Single-Frequency Optimal FTN Signals on the Occupied Frequency Bandwidth and BER Performance 181
Sergey B. Makarov, Anna S. Ovsyannikova, Sergey V. Zavjalov, Sergey V. Volvenko, and Lei Zhang

Spectral Efficiency Comparison Between FTN Signaling and Optimal PR Signaling for Low Complexity Detection Algorithm. 191
Aleksei Plotnikov and Aleksandr Gelgor

A Method of Simultaneous Signals Spectrum Analysis for Instantaneous Frequency Measurement Receiver 200
Dmitrii Kondakov, Alexey Kosmylin, and Alexander Lavrov

Analytical Models for Schedule-Based License Assisted Access (LAA) LTE Systems 210
Ekaterina Markova, Dmitri Moltchanov, Anna Sinityna, Daria Ivanova, Valeria Filipova, Irina Gudkova, and Konstantin Samouylov

Kinetic Approach to Elasticity Analysis of D2D Links Quality Indicators Under Non-stationary Random Walk Mobility Model	224
<i>Andrey K. Samuylov, Anastasia Yu. Ivchenko, Yu. N. Orlov, Dmitri A. Moltchanov, Ekaterina V. Bobrikova, Yuliya V. Gaidamaka, and Vsevolod S. Shorgin</i>	
The Phenomenon of Secondary Flow Explosion in Retrial Priority Queueing System with Randomized Push-Out Mechanism	236
<i>Maria Korenevskaya, Oleg Zayats, Alexander Ilyashenko, and Vladimir Muliukha</i>	
Comparison of LBOC and RBOC Mechanisms for SIP Server Overload Control	247
<i>Oleg E. Pavlotsky, Ekaterina V. Bobrikova, and Konstantin E. Samouylov</i>	
Performance Analysis of Cognitive Femtocell Network with Ambient RF Energy Harvesting	255
<i>Jerzy Martyna</i>	
Comparative Analysis of the Mechanisms for Energy Efficiency Improving in Cloud Computing Systems	268
<i>A. V. Daraseliya, E. S. Sopin, A. K. Samuylov, and S. Ya. Shorgin</i>	
Blue Team Communication and Reporting for Enhancing Situational Awareness from White Team Perspective in Cyber Security Exercises	277
<i>Tero Kokkonen and Samir Puuska</i>	
An Approach to Classification of the Information Security State of Elements of Cyber-Physical Systems Using Side Electromagnetic Radiation . . .	289
<i>Viktor Semenov, Mikhail Sukhoparov, and Ilya Lebedev</i>	
Signing Documents by Hand: Model for Multi-Factor Authentication	299
<i>Sergey Bezzateev, Natalia Voloshina, Vadim Davydov, Tamara Minaeva, and Nikolay Rudavin</i>	
System for Secure Computing Based on Homomorphism with Reduced Polynomial Power.	312
<i>Viacheslav Davydov</i>	
An Approach to Selecting an Informative Feature in Software Identification . . .	318
<i>Kseniya Salakhutdinova, Irina Krivtsova, Ilya Lebedev, and Mikhail Sukhoparov</i>	
A-MSDU Frame Aggregation Mechanism Efficiency for IEEE 802.11ac Network. The Optimal Number of Frames in A-MSDU Block	328
<i>Anton Vikulov and Alexander Paramonov</i>	

A Concise Review of 5G New Radio Capabilities for Directional Access at mmWave Frequencies	340
<i>Giulia Sanfilippo, Olga Galinina, Sergey Andreev, Sara Pizzi, and Giuseppe Araniti</i>	
Energy - Aware Offloading Algorithm for Multi-level Cloud Based 5G System	355
<i>Abdelhamied A. Ateya, Ammar Muthanna, Anastasia Vybornova, Pyatkina Darya, and Andrey Koucheryavy</i>	
Performance Analysis for DM-RS Mapping in a High Speed Train System . . .	371
<i>Jihyung Kim, Juho Park, Junghoon Lee, and JunHwan Lee</i>	
Characterizing mmWave Radio Propagation at 60 GHz in a Conference Room Scenario	381
<i>Aleksei Ponomarenko-Timofeev, Vasilii Semkin, Pavel Masek, and Olga Galinina</i>	
Transmission of Augmented Reality Contents Based on BLE 5.0 Mesh Network	394
<i>Maria Makolkina, Van Dai Pham, Truong Duy Dinh, Alexander Ryzhkov, and Ruslan Kirichek</i>	
Performance Limitations of Parsing Libraries: State-of-the-Art and Future Perspectives	405
<i>Antonino Manlio D'Agostino, Aleksandr Ometov, Alexander Pyattaev, Sergey Andreev, and Giuseppe Araniti</i>	
Optimization Algorithm for IPTV Video Service Delivery over SDN Using MEC Technology	419
<i>Steve Manariyo, Abdukodir Khakimov, Darya Pyatkina, and Ammar Muthanna</i>	
Analytical Modeling of Development and Implementation of Telecommunication Technologies	428
<i>Vladimir Gluhov, Valery Leventsov, Anton Radaev, and Nikolay Nikolaevskiy</i>	
Resource Allocation for the Provision of Augmented Reality Service.	441
<i>Maria Makolkina, Alexander Paramonov, and Andrey Koucheryavy</i>	
Development of the Mechanism of Risk-Adjusted Scheduling and Cost Budgeting of R&D Projects in Telecommunications	456
<i>Sergei Grishunin, Svetlana Suloeva, and Tatiana Nekrasova</i>	
Towards Business Optimization and Development of Telecommunication Companies: Tools Analysis and Their Adaptation Opportunities	471
<i>Vladimir V. Glukhov, Igor V. Ilin, and Aleksandr A. Lepekhin</i>	

A Prospect Theoretic Look at a Joint Radar and Communication System 483
Andrey Garnaev, Wade Trappe, and Athina Petropulu

Algorithm for Positioning in Non-line-of-Sight Conditions
 Using Unmanned Aerial Vehicles 496
Grigoriy Fokin and Al-odhari Abdulwahab Hussain Ali

Features of the Development of Transceivers for Information
 and Communication Systems Considering the Distribution
 of Radar Operating Frequencies in the Frequency Range 509
*Alexey S. Podstrigaev, Andrey V. Smolyakov, Vadim V. Davydov,
 Nikita S. Myazin, and Maria G. Slobodyan*

EMC Provision Method of LTE-800 Networks and Air Traffic Control
 Radars Based on Mechanism of Cell Radius Management for LTE
 Base Stations 516
*Valery Tikhvinskiy, Victor Koval, Pavel Korchagin,
 and Sergey Terentyev*

A Lower Bound on the Average Identification Time in a Passive
 RFID System 524
Nikita Stepanov, Nikolay Matveev, Olga Galinina, and Andrey Turlikov

IoT Based Earthquake Prediction Technology 535
*Rustam Pirmagomedov, Mikhail Blinnikov, Alexey Amelyanovich,
 Ruslan Glushakov, Svyatoslav Loskutov, Andrey Koucheryavy,
 Ruslan Kirichek, and Ekaterina Bobrikova*

Interaction of AR and IoT Applications on the Basis of Hierarchical
 Cloud Services 547
*Maria Makolkina, Van Dai Pham, Ruslan Kirichek, Alexander Gogol,
 and Andrey Koucheryavy*

AR Enabled System for Cultural Heritage Monitoring and Preservation 560
*Ammar Muthanna, Abdelhamied A. Ateya, Aleksey Amelyanovich,
 Mikhail Shpakov, Pyatkina Darya, and Maria Makolkina*

Distributed Streaming Data Processing in IoT Systems Using Multi-agent
 Software Architecture 572
Alexey Kovtunencko, Azat Bilyalov, and Sagit Valeev

Optimization of Routes in the Internet of Things 584
Omar Abdulkareem Mahmood and Alexander Paramonov

Chirped Fiber Grating Beamformer for Linear Phased Array Antenna 594
*Sergey I. Ivanov, Alexander P. Lavrov, Igor I. Saenko,
 and Daniil L. Filatov*

Design and Analysis of Circular-Polarized Patch Antenna at S-band for a Nanosatellite	605
<i>Vasilii Semkin</i>	
The Casimir-Operated Microdevice for Application in Optical Networks	613
<i>Galina L. Klimchitskaya, Vladimir M. Mostepanenko, and Viktor M. Petrov</i>	
Features of Transmission of Intermediate Frequency Signals over Fiber-Optical Communication System in Radar Station	624
<i>Alexey S. Podstrigaev, Roman V. Davydov, Vasiliy Yu. Rud, and Vadim V. Davydov</i>	
Fiber Optic Current Meter for IIoT in Power Grid.	631
<i>Valentina Temkina, Andrey Medvedev, Alexey Mayzel, and Alexander Mokeev</i>	
Some Directions of Quantum Frequency Standard Modernization for Telecommunication Systems	641
<i>Alexander A. Petrov, Vadim V. Davydov, and Nadya M. Grebenikova</i>	
Nanocommunication System with a Laser Activated Molecular Film	649
<i>Elena Velichko, Ekaterina Savchenko, Elina Nepomnyashchaya, Dmitrii Dyubo, and Oleg Tsybin</i>	
Graphene-Coated Substrate as a Basis for Nano-Antennae	656
<i>Vladimir S. Malyi, Constantine C. Korikov, and Viktor M. Petrov</i>	
Synthesis of the Demodulation Algorithm for the Phase Modulated Signals in Presence of the Background Noise Using Complete Sufficient Statistics . . .	666
<i>Sergey I. Ivanov, Leonid B. Liokumovich, and A. V. Medvedev</i>	
Dynamics of Polypeptide Cluster Dipole Moment for Nano Communication Applications	675
<i>Elena Velichko, Tatiana Zezina, Maxim Baranov, Elina Nepomnyashchaya, and Oleg Tsybin</i>	
X-Ray Scattering by Antiphase Ferroelectric Domain Walls in the Antiferroelectric Phase of the $\text{PbZr}_{0.985}\text{Ti}_{0.015}\text{O}_3$	683
<i>Sergej Vakhrushev, Daria A. Andronikova, Dmitry Y. Chernyshov, Alexey V. Filimonov, Stanislav A. Udovenko, and N. V. Ravi Kumar</i>	
Study of Self-assembled Molecular Films as a Method of Search for Promising Materials in Nanoelectronics and Nanocommunications	691
<i>Elena Velichko, Elina Nepomnyashchaya, and Maxim Baranov</i>	

Correction to: Internet of Things, Smart Spaces, and Next Generation
Networks and Systems. E1
*Olga Galinina, Sergey Andreev, Sergey Balandin,
and Yevgeni Koucheryavy*

Author Index 703