

JOURNAL OF POLYMER ENGINEERING

EDITOR-IN-CHIEF

Nino Grizzuti, Naples

EDITORS

Abdellah Aji, Montreal, QC

Pedro Fardim, Leuven

Michele Galizia, Norman, OK

Hiroshi Ito, Yamagata

Yongjin Li, Hangzhou

Shih-Jung Liu, Tao-Yuan

Ana Vera Machado, Minho

Tim A. Osswald, Madison, WI

Roberto Pantani, Salerno

ADVISORY BOARD

Francisco J. Baltá Calleja, Madrid

Satinath N. Bhattacharya, Melbourne

Shia-Chung Chen, Chung-Li

José A. Covas, Guimarães

Igor Emri, Ljubljana

Donald L. Feke, Cleveland, OH

Dino Ferri, Mantua

Walter W. Focke, Hatfield

Russell E. Gorga, Raleigh, NC

Juan P. Hernández Ortiz, Medellín

Christian Hopmann, Aachen

Sadhan C. Jana, Akron, OH

Takeshi Kikutani, Tokyo

Christopher W. Macosko, Minneapolis, MN

Ica Manas-Zloczower, Cleveland, OH

Han E. H. Meijer, Eindhoven

Ashok Misra, Bombay

Luiz A. Pessan, São Carlos

Hans-J. Radusch, Wittenberg

Tadamoto Sakai, Tokyo

Zehev Tadmor, Haifa

Bruno Vergnes, Sophia Antipolis

Xinling Wang, Shanghai

DE GRUYTER

ABSTRACTED/INDEXED IN Baidu Scholar · Chemical Abstracts Service (CAS): CAPlus; SciFinder · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC: cnpLINKer · Dimensions · EBSCO (relevant databases) · EBSCO Discovery Service · Ei Compendex · 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 · MyScienceWork · Naver Academic · Naviga (Softweco) · Paperbase · Polymer Library · Primo Central (ExLibris) · Publons · QOAM (Quality Open Access Market) · ReadCube · Reaxys · SCImago (SJR) · SCOPUS · Semantic Scholar · Sherpa/RoMEO · Summon (ProQuest) · TDNet · TEMA Technik und Management · Ulrich's Periodicals Directory/ulrichsweb · WanFang Data · Web of Science: Current Contents/Engineering, Computing, and Technology; Reaction Citation Index; Science Citation Index Expanded · WorldCat (OCLC) · Yewno Discover

The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions of liability for the results obtained from use of the information, or parts thereof, contained in this work.

The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

ISSN 0334-6447 · e-ISSN 2191-0340

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at <https://www.degruyter.com/polyeng>

RESPONSIBLE EDITOR Prof. Nino Grizzuti, Department of Chemical, Materials and Production Engineering, University of Naples Federico II, Piazzale V. Tecchio 80, 80125 Naples, Italy, Tel.: +39-081-7682285, e-mail: nino.grizzuti@unina.it

PUBLISHER Walter de Gruyter GmbH, Berlin/Boston, Genthiner Straße 13, 10785 Berlin, Germany

JOURNAL COORDINATOR Dr. Gunda Stöber, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05-279, e-mail: polyeng.editorial@degruyter.com

RESPONSIBLE FOR ADVERTISEMENTS Markus Kügel, De Gruyter, Rosenheimer Str. 143, 81671 München, Germany. Tel.: +49 89 76 902-424, e-mail: anzeigen@degruyter.com

© 2022 Walter de Gruyter GmbH, Berlin/Boston, Germany

TYPESETTING TNQ Technologies, Chennai, India

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



Contents

Material Properties

Zhendong Hu, Xueqing Liu, Tianli Ren, Haroon A. M. Saeed, Quan Wang, Xin Cui, Kai Huai, Shuohan Huang, Yuming Xia, Kun(Kelvin) Fu, Jianming Zhang and Yuwei Chen

Research progress of low dielectric constant polymer materials — 677

Minghua Li, Jiajia Jiang, Xiaoyu Lu, Jie Gao, Dongming Jiang and Lei Gao

Natural rubber reinforced with super-hydrophobic multiwalled carbon nanotubes: obvious improved abrasive resistance and enhanced thermal conductivity — 688

Henrique Carvalho de Oliveira, Alessandra Lavoratti, Iaci Miranda Pereira, Tamara Indrusiak Silva, Bluma Guenther Soares, Lilian Vanessa Rossa Beltrami and Ademir José Zattera

Epoxy resin/graphene nanoplatelets composites applied to galvanized steel with outstanding microwave absorber performance — 695

Vijendra Kumar, Abhishek Barnwal, Rajesh K. Shukla and Jyoti Shakya

Enhancement of thermal conductivity in polymer composites by maximizing surface-contact area of polymer-filler interface — 703

Bendjeddou Walid, Aguib Salah, Chikh Nouredine, Nour Abdelkader, Djedid Toufik, Kobzili Lallia and Meloussi Mounir

Dynamic characterization of the magnetomechanical properties of off axis anisotropic magnetorheological elastomer — 714

Monalisha Mohanta and A. Thirugnanam

Investigation of optical and biocompatible properties of polyethylene glycol-aspirin loaded commercial pure titanium for cardiovascular device applications — 725

Alejandra De La Cruz Natera, Adriana Cordero García, Juan Restrepo Betancourt, Mary Judith Arias Tapia and Oscar Vargas Ceballos

Poly(lactic acid) effectively reinforced with reduced graphitic oxide — 736

Preparation and Assembly

Tong Xu, Di Qian, Yelei Hu, Yuanzhao Zhu, Yi Zhong, Linping Zhang, Hong Xu and Zhiping Mao

Assembled hybrid films based on sepiolite, phytic acid, polyaspartic acid and Fe^{3+} for flame-retardant cotton fabric — 744

Zhaohui Lu

Fabrication, characterization, and performance of poly (aryl ether nitrile) flat sheet ultrafiltration membranes with polyvinyl pyrrolidone as additives — 755

Ahmed Awadallah-F, Hassan H. H. Hefni, Ahmed E. Awadallah, Emad A. Badr and Magd M. Badr

Synthesis of composite membranes from polyacrylonitrile/carbon resorcinol/formaldehyde xerogels: gamma effect study, characterization and ultrafiltration of salted oily wastewater — 765

Niloofar Ghasemzaie, Afra Hadjizadeh and Hassan Niknejad

Chitosan nanoparticles encapsulated into PLA/gelatin fibers for bFGF delivery — 776

Engineering and Processing

Zhiyi Zhang, Zhichun Li, Fengbo Zhu, Lan Jia, Yudong Wang, Jingxin Zhu, Yanlong Ma, Hongwei He, Yuyuan Fan, Ying Zhang, Pengfei Fei and Yu Feng

Stable photoluminescent electrospun CdSe/CdS quantum dots-doped polyacrylonitrile composite nanofibers — 787