

INTERNATIONAL POLYMER PROCESSING

THE JOURNAL OF THE POLYMER PROCESSING SOCIETY



Polymer Processing Society

**EDITOR-IN-CHIEF AND EDITOR
FOR EUROPE, MIDDLE EAST AND
AFRICA**

José A. Covas, Guimarães

**ASSOCIATE EDITOR FOR THE
AMERICAS**

Marianna Kontopoulou, Kingston

**ASSOCIATE EDITOR FOR EAST
ASIA AND AUSTRALIA**

Toshihisa Kajiwara, Fukuoka

EDITORIAL BOARD

J. F. Agassant, Valbonne

V. Altstädt, Bayreuth

S. Bhattacharya, Melbourne

M. Bousmina, Rabat

M. Cakmak, Akron, OH

P. Cassagnau, Lyon

N. Demarquette, Montreal

M. Fujiyama, Yamaguchi

C. Holzer, Leoben

C. Hopmann, Aachen

T. Kanai, Anegaski

T. Kikutani, Tokyo

J. K. Kim, Pohang

S.-J. Liu, Taipei

E. di Maio, Naples

P. Moldenaers, Leuven

M. Ohshima, Kyoto

C. B. Park, Toronto

L. A. Pessan, Sao Carlos

S. Sinha Ray, Gauteng

L. Sun, Storrs, CT

L.-S. Turng, Madison, WI

J. Vlachopoulos, Hamilton

H. Xia, Sichuan

DE GRUYTER

ABSTRACTED/INDEXED IN Baidu Scholar · Chemical Abstracts Service (CAS): CAPlus; SciFinder · CNKI Scholar (China National Knowledge Infrastructure) · CNPIEC: cnpLINKer · Dimensions · EBSCO Discovery Service · Google Scholar · J-Gate · Journal Citation Reports/Science Edition · KESLI-NDSL (Korean National Discovery for Science Leaders) · MyScienceWork · Naver Academic · Naviga (Softweco) · Primo Central (ExLibris) · ReadCube · Scilit · SCImago (SJR) · SCOPUS · Semantic Scholar · Sherpa/RoMEO · Summon (ProQuest) · TDNet · WanFang Data · Web of Science: Current Contents/Engineering, Computing, and Technology; Science Citation Index Expanded · WorldCat (OCLC) · X-MOL · Yewno Discover

ISSN 0930-777X · e-ISSN 2195-8602

IPP is the official journal of the Polymer Processing Society, 810 E. 10th St. Lawrence, KS 66044, United States, pps@allenpress.com

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

RESPONSIBLE EDITORS J.A. Covas, Institute for Polymers and Composites, Dept. of Polymer Engineering, University of Minho, 4804-533 Guimarães, Portugal, e-mail: jcovas@dep.uminho.pt; M. Kontopoulou, Department of Chemical Engineering, Queen's University Kingston, ON K7L3N6 Canada, e-mail: kontopm@queensu.ca; T. Kajiwara, Department of Chemical Engineering, Kyushu University, 744 Motooka, Nishi-ku, Fukuoka 819-0395, Japan, e-mail: kajiwara@chem-eng.kyushu-u.ac.jp

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

JOURNAL COORDINATOR Birgit Zoglmeier, De Gruyter, Germany, Tel.: +49 (0)89 76902426, e-mail: Birgit.Zoglmeier@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

© 2023 Walter de Gruyter GmbH, Berlin/Boston, Germany

TYPESETTING TNQ Technologies, Chennai, India

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



Contents

Research Articles

Chithambara Thanu, Fantin Irudaya Raj, Appadurai and Lurthu Pushparaj

Mechanical strength enhancement of natural fibre composites via localized hybridization with stitch reinforcement — 539

K. Manickaraj, R. Ramamoorthi, S. Sathish and A. Johnson Santhosh

A comparative study on the mechanical properties of African teff and snake grass fiber-reinforced hybrid composites: effect of bio castor seed shell/glass/SiC fillers — 551

Fantin Irudaya Raj, Appadurai, Lurthu Pushparaj and Chithambara Thanu

Mechanical characterization of randomly oriented short Sansevieria Trifasciata natural fibre composites — 564

Ponnusamy Natarajan, Ponnusamy Rajasekaran, Manoharan Mohanraj and Shanmugam Devi

Mechanical and tribological properties of snake grass fibers reinforced epoxy composites: effect of Java plum seed filler weight fraction — 582

Xu Zhang, Simiao Sun, Dehe Yuan, Zhi Wang, Hua Xie and Zhanpeng Su

Chicken feather protein for the thermal stability and combustion performance of rigid polyurethane foam — 593

Meltem Ürer and Aydın Demir

Free vibration behaviour and some mechanical properties of micro particle reinforced epoxy composites — 606

Zoulikha Khiati and Lahouari Mrah

Polyvinylidene fluoride/maghnite nanocomposites: fabrication and study of structural, thermal and mechanical properties — 615