FIBRES & TEXTILES

in Eastern Europe

published by Instytut Biopolimerów i Włókien Chemicznych Institute of Biopolymers and Chemical Fibres (IBWCh), Łodź, Poland

Editorial Office

ul. Skłodowskiej-Curie 19/27, 90-570 Łódź, Poland tel. (48-42) 638-03-63, 638-03-14 e-mail: infor@ibwch.lodz.pl http://www.fibtex.lodz.pl

Editorial Department

Editor-in-Chief Emilia Jaszczurska-Niedźwiedzka V-ce Editor-in-Chief Marta Cyrczak Assistant Editor Anna Wahl

Text Editor **Geoffrey Large Typesetting** Beata Gawlowska, Media-Press Printed at Media-Press





FIBRES & TEXTILES in Eastern Europe is decorated with the Golden Order of the Polish Textile **Association**

Editorial Committee

Chairman: Dariusz Wawro (IBWCh) Members: Danuta Ciechańska (IBWCh) Izabela Ciesielska-Wróbel (UGent, NCSU) Włodzimierz Cygan (TUL) Zdzisław Czaplicki (INFMP) Robert Drobina (UB-B) Radosław Dziuba (UL) Katarzyna Grabowska (TUL) Ryszard Korycki (TUL) Bipin Kumar (HKPU) Bogdan Mac (IBWCh) Malgorzata Michniewicz (IBWCh) Rimvydas Milašius (KTU) Monika Rom (UB-B) Sigitas Stanys (KTU) Zbigniew Stempień (TUL) Krystyna Twarowska-Schmidt (IBWCh)

November / December 2017 Volume 25, No. 6 (126) ISSN 1230-3666 IF 0.626 (2016) ICV = 146.46 (2016)

Scientific Board

Alojzy Urbanowski (IBWCh)

Chairman:

Prof. Andrzej Ziabicki
Polish Academy of Sciences, Warsaw, Poland

Members:

Prof. Valery Bashmetau

Vitebsk State Technological University, Belarus

Prof. Andrzej Błędzki

West Pomeranian University of Technology Szczecin, Poland

Prof. Chokri Cherif Technical University of Dresden, Germany

Porf. Hans-Peter Fink

Potsdam-Golm, Germany

Prof. Tadeusz Jackowski

Lodz University of Technology, Poland

Prof. Vladan Koncar

GEMTEX laboratory, ENSAIT, Roubaix, France

Prof. Ryszard Kozłowski

Institute of Natural Fibres and Medical Plants, Poznań, Poland

Prof. Izabella Krucińska

Lodz University of Technology, Poland

Prof. Anton Marcinčin

Slovak University of Technology, Bratislava, Slovak Republic Prof. Józef Masajtis Lodz University of Technology, Poland Prof. Vytautas Milašius

Kaunas University of Technology, Lithuania

Prof. Jiři Militký

Technical University of Liberec, Czech Republic
Prof. Heinrich Planck
Denkendorf, Germany
Prof. Zoran Stjepanovič
University of Maribor, Slovenia
Prof. Lieva Van Langenhove

Gent University, Belgium

FIBRES & TEXTILES in Eastern Europe is inserted on the 'Master Journal List' of the Institute for Scientific Information, Philadelphia, USA (for the year 2016 Impact Factor is 0.626). In Index Copernicus Journals Master List in 2016 the journal received ICV = 146.46. FIBRES & TEXTILES in Eastern Europe is indexed in Research Alert, SCI Expanded (Sci Search and Web of Science), the Materials Science Citation Index. Current Contents/Engineering, Computing & Technology; as well as by the Textile Institute, Manchester, in the Information Service; and in Rapra Technology Ltd.; Elsevier Geo Abstracts; Chemical Abstracts Service; and by Referativny Zhurnal, among others.

The content of 'FIBRES & TEXTILES in Eastern Europe' is available as free open access at http://www.fibtex.lodz.pl

No part of this publication may be reproduced without the prior written permission of the publisher: Instytut Biopolimerów i Włókien Chemicznych - Institute of Biopolymers and Chemical Fibres.

No responsibility is assumed by the publisher for any injury and/or damage to persons or property as a matter of application of any methods, products, instructions or ideas contained in the material herein. Although all advertising material is expected to conform to ethical standards, inclusion in this publication does not constitute aguarantee or endorsement of the quality or value of such product

On the cover a fragment of Jolanta Owidzka's structural tapestry 'Prayer book'

This issue is financially supported by the Ministry of Science and Higher Education.