

ISSN: 2161-7554

Volume 10, Number 2, April 2020



# New Journal of Glass and Ceramics



ISSN: 2161-7554



<https://www.scirp.org/journal/njgc>

# Journal Editorial Board

ISSN Print: 2161-7554 ISSN Online: 2161-7562

<https://www.scirp.org/journal/njgc>

---

## Editor-in-Chief

**Prof. Emad Ewais**

Central Metallurgical R&D Institute (CMRDI), Egypt

## Editorial Board

**Dr. Claudia Belviso**

The Institute of Methodologies for Environmental Analysis, Italy

**Dr. Nikolaos Bouropoulos**

University of Patras, Greece

**Prof. Andrew E. Burns**

Kent State University Stark Campus, USA

**Dr. Luís Antônio S. de A. Prado**

Technische Universität Hamburg-Harburg, Germany

**Prof. Aswini Ghosh**

Indian Association for the Cultivation of Science, India

**Prof. Michael T. Lanagan**

Penn State University, USA

**Dr. Hong Li**

PPG Industries, Inc., USA

**Prof. Ji-Guang Li**

Northeastern University, China

**Dr. Bouzid Menaa**

Fluorotronics, Inc, USA

**Dr. Nelcy Della Santina Mohallem**

Universidade Federal de Minas Gerais, Brazil

**Dr. Faik Nuzhet Oktar**

Marmara University, Turkey

**Dr. Dinesh Pathak**

University of Pardubice, Czech Republic

**Dr. Mukul Chandra Paul**

Central Glass & Ceramic Research Institute, India

**Prof. Zhijian Peng**

China University of Geosciences, China

**Dr. Gary R. Pickrell**

Virginia Polytechnic Institute and State University, Germany

**Dr. Liudvikas Pranevicius**

Vytautas Magnus University, Lithuania

**Prof. Giancarlo C. Righini**

National Research Council, Italy

**Prof. Sylwester J. Rzoska**

Polish Academy of Sciences, Poland

**Dr. Styliani D. Sklari**

Centre for Research and Technology, Greece

**Prof. Boris Subotic**

Ruđer Boskoviæ Institute, Croatia

**Prof. Maria Suszynska**

Polish Academy of Sciences, Poland

**Prof. Kulwant Singh Thind**

Guru Nanak Dev University, India

# Table of Contents

**Volume 10    Number 2**

**April 2020**

**Characterizing Property of States: Effect of Defects on the Coefficient of Thermal Expansion  
and the Specific Heat Capacity of  $\text{ZrB}_2$**

J. O. Ighere, P. A. Greaney.....15

# New Journal of Glass and Ceramics (NJGC)

## Journal Information

### SUBSCRIPTIONS

The *New Journal of Glass and Ceramics* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published quarterly by Scientific Research Publishing, Inc., USA.

#### **Subscription rates:**

Print: \$79 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### SERVICES

#### **Advertisements**

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

#### **Reprints (minimum quantity 100 copies)**

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### COPYRIGHT

#### **Copyright and reuse rights for the front matter of the journal:**

Copyright © 2020 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

#### **Copyright for individual papers of the journal:**

Copyright © 2020 by author(s) and Scientific Research Publishing Inc.

#### **Reuse rights for individual papers:**

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

#### **Disclaimer of liability**

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

### PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: [njgc@scirp.org](mailto:njgc@scirp.org)



# New Journal of Glass and Ceramics

ISSN Print: 2161-7554 ISSN Online: 2161-7562

<https://www.scirp.org/journal/njgc>

**New Journal of Glass and Ceramics (NJGC)** is an international, specialized, English-language journal devoted to publication of original contributions concerning all branches of glass and ceramics, their properties and applications. It is an open-access, peer-reviewed journal describing scientific and technological advances that cover the basic sciences, engineering aspects and applied technology of glass and ceramics as bulk and films.

## Editorial Board

Dr. Claudia Belviso  
Dr. Nikolaos Bouropoulos  
Prof. Andrew E. Burns  
Dr. Luís Antônio S. de A. Prado  
Prof. Aswini Ghosh  
Prof. Michael T. Lanagan  
Dr. Hong Li  
Prof. Ji-Guang Li

Dr. Bouzid Menaa  
Dr. Nelcy Della Santina Mohallem  
Dr. Faik Nuzhet Oktar  
Dr. Dinesh Pathak  
Dr. Mukul Chandra Paul  
Prof. Zhijian Peng  
Dr. Gary R. Pickrell  
Dr. Liudvikas Pranevicius

Prof. Giancarlo C. Righini  
Prof. Sylwester Janusz Rzoska  
Dr. Styliani D. Sklari  
Prof. Boris Subotic  
Prof. Maria Suszynska  
Prof. Kulwant Singh Thind

## Subject Coverage

The journal publishes the highest quality original full articles, communications, notes, reviews, special issues and books, covering both the experimental and theoretical aspects including but not limited to the following materials, techniques and studies:

- Aerogels
- Automotive Glasses
- Bioceramics
- Bioglass
- Cements and Concrete
- Ceramic and Glass Powders
- Ceramic Composites
- Coatings Process
- Crystallization in Glass
- Decorative Glasses
- Glass Fibers
- Glass Polymers
- Low-Softening Temperature Glasses
- Nanoglass
- New Inorganic Glasses
- Organic-Inorganic Glasses
- Powder Preparation and Colloidal Sciences
- Refractories and Industrial Glasses and Ceramics
- Sol-Gel Glasses

With applications in: nanotechnology, optics, photonics, biomedical, biomaterials for implants and prosthesis, dentistry, environment, energy, thermal insulation, materials reinforcement, architectural restoration.

Contributions to fundamental and basic sciences of glass and ceramics research will be highlighted.

These concerns among others the properties and the characterization of glasses: glass structures studies, diffusion and kinetics in glasses, phase studies, thermodynamics, mechanical, thermal stability, salivation, surface properties, porosity, electrical, thermal, optical, magnetic and conductivity properties.

These concern also the theoretical aspect of the science of glass and ceramics with structure-properties relationship including modeling approaches, mechanisms. Manuscripts dealing with the technical aspect including the development of innovating tools for materials processes and productions as well as the characterization techniques of the materials are welcome.

## Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. Authors are responsible for having their papers checked for style and grammar prior to submission to NJGC. For more details about the submissions, please access the website.

## Website and E-Mail

<https://www.scirp.org/journal/njgc>

Email: [njgc@scirp.org](mailto:njgc@scirp.org)