
This item was submitted to [Loughborough's Research Repository](#) by the author.
Items in Figshare are protected by copyright, with all rights reserved, unless otherwise indicated.

Editorial: January 2017

PLEASE CITE THE PUBLISHED VERSION

<http://dx.doi.org/10.1080/17436753.2016.1267942>

PUBLISHER

© 2017 Institute of Materials, Minerals and Mining. Published by Taylor & Francis

VERSION

AM (Accepted Manuscript)

PUBLISHER STATEMENT

This work is made available according to the conditions of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) licence. Full details of this licence are available at:
<https://creativecommons.org/licenses/by-nc-nd/4.0/>

LICENCE

CC BY-NC-ND 4.0

REPOSITORY RECORD

Vaidhyathan, Bala. 2017. "Editorial: January 2017". figshare. <https://hdl.handle.net/2134/24496>.

AAC Editorial, Jan 2017

I am honored and humbled to be appointed as the co-editor of *Advances in Applied Ceramics* (AAC) at an exciting time for research into ceramic materials. The ceramics research globally is driven by the need for newer and better materials and efficient manufacturing processes for their fabrication so as to realize their true potential for structural, functional, electronic, energy and healthcare applications. This is further boosted by the significant advances in the synthesis and processing of both the traditional and advanced ceramics. Additive manufacturing techniques such as 3D printing are being developed to bring in a radical transformation on how functional ceramics are made. Such digital manufacturing could set the way forward for the next generation ceramics with designed and tailored functionalities. Advanced ceramics and hybrid materials possessing hierarchical and functionally gradient structures suitable for demanding applications are now becoming a reality from concepts – Metamaterials is one such area where materials are custom designed and made through an 'atom to applications' approach.



Significant advancements on novel synthesis and processing procedures such as Spark Plasma Sintering, Flash Sintering, Microwave processing, Materials processing under high magnetic fields, commonly referred as Field Assisted Processing in general, were instrumental in achieving the fabrication of genuinely nanostructured ceramics and devices with unique properties and hitherto unexplored application opportunities. Fundamental research into nanomaterials also provides new research insights onto the size effects in bulk ceramics. It is nice to note that in this regard, the first issue of 2017 will feature a state-of-the-art review on one of the recently developed rapid densification techniques, namely Flash Sintering.

Simulation and modelling activities centered on ceramic materials and their processing help to develop greater insights into the underpinning mechanisms as well as to create the vital structure-property correlations that can be translated to real world applications. Further, developments on novel state-of-the-art characterisation techniques help to analyse and understand ceramics at various nano, micro, meso and macro length scales. Another area in the world of composites that is receiving significant attention in recent years is the development of Ultra High Temperature Ceramic Composites

(UHTCs) for thermal protection in space re-entry vehicles, hypersonic aviation, and nuclear applications. Ceramic thermoelectrics, photovoltaic perovskites, batteries and super-capacitors based on Graphene and carbon nanotubes are pushing the research boundaries of energy materials. There are special AAC issues planned around these new fields of rapid developments such as UHTCs, Additive Manufacturing etc in future.

The coverage of AAC is broad, reflecting all aspects of applied ceramics research - ferroelectrics, thermoelectrics, carbon nanotube and graphene composites, biomedical and dental, sensors, transparent, nanostructured, ultra high temperature ceramics, and novel cement materials. To capture rapid developments in important fields the journal will encourage focused reviews in emerging fields in structural, functional and biomaterials. Original and innovative research articles in any field of ceramics will always be welcome. The journal will maintain its ability to rapidly publish timely research through the Taylor & Francis team. The editorial board was reviewed in 2016 with appointments made to support key subject areas and ensure international representation. The process is set to continue next year also and I would like to thank all the existing board members for their continued support.

It is my pleasure to thank Professor Mike Reece for all of his efforts to establish *Advances in Applied Ceramics* as a high impact international ceramics journal of repute. Together we expect to continue the success and lead the journal to greater heights with all your help and support.

Prof. B. Vaidhyanathan
Department of Materials, Loughborough University