

Name: Papiya Biswas

Qualification: PhD (Metallurgical and Materials Engineering)

Designation: Scientist – D

Areas of interest:

Transparent ceramics
Chemical Vapour Deposition
Advanced ceramic processing
Colloidal shaping
Hot Isostatic Pressing
3D printing
Characterisation



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List of Publications

1. 3D Extrusion Printing of Magnesium Aluminate Spinel Ceramic Parts Using Thermally Induced Gelation of Methyl Cellulose
Papiya Biswas, Sirisala Mamatha, Subhendu Naskar, Yabaluri Srinivasa Rao, Roy Johnson and Gadhe Padmanabham
Journal of Alloys and Compounds 770 (2019) 419-423
2. 3D printing of complex shaped alumina parts
Sirisala Mamatha, **Papiya Biswas**, Pandu Ramavath, Dibakar Das, Roy Johnson
Ceramics International 44 (2018) 19278-19281
3. Mechanical Behavior of Alumina based Reticulated Foams Encapsulated and Infiltrated with Polymer under Quasistatic and Dynamic Conditions
Kanike Rajesh, Vattaparambil Shipin, **Papiya Biswas**, Asit Kumar Khanra and Roy Johnson
Transactions of Indian Ceramic Society 77 (2018) 1-4

4. Thermal degradation of ceramic slurry-coated polyurethane foam used in making reticulated porous SiC ceramics
Atanu Dey, **Papiya Biswas**, Vignaswaran K. Veerapandiyan, Nijhuma Kayal, Roy Johnson, Omprakash Chakrabarti
Journal of Thermal Analysis and Calorimetry 131 (2018) 2603-2610
5. Effect of Room and High Temperature Compaction on Optical and Mechanical Properties of HIPed Transparent Spinel Ceramics
Papiya Biswas, Pandu Ramavath, Chandrashekhar Sadasiv Kumbhar, Dinesh S. Patil, Tapas Kumar Chongdar, Nitin Madhusudan Gokhale, Roy Johnson and Mantravadi Krishna Mohan
Advance Engineering Materials 19 (2017) 1700111-1 – 1700111-7
6. Flash-sintering of Magnesium Aluminate Spinel (MgAl₂O₄) Ceramics
Hidehiro Yoshida, **Papiya Biswas**, Roy Johnson
Journal of the American Ceramic Society 100 (2017) 554-562
7. Comparative evaluation of electrical conductivity of hydroxyapatite ceramics densified through ramp and hold, spark plasma and post sinter Hot Isostatic Pressing routes
M. Buchi Suresh, **P. Biswas**, V. Mahender, Roy Johnson
Materials Science and Engineering C 70 (2017) 364–370
8. Development of Cordierite based Reticulated Foams with Improved Mechanical Properties for Porous Burner Applications
P. Biswas, K. Varaprasad, P. Ramavath, M. Buchi Suresh, A. K. Khanra, R. Johnson
Transactions of Indian Ceramic Society 76 (2017) 56-61
9. Fabrication of MgAl₂O₄ Spinel Scaffolds and Sonochemical Synthesis and Deposition of Hydroxyapatite Nanorods
Papiya Biswas, Anu Sharma, Manu Krishnan, Roy Johnson, Mantravadi Krishna Mohan
Journal of the American Ceramic society 99 (2016) 1544–1549
10. Fabrication of graphite contamination free polycrystalline transparent MgAl₂O₄ spinel by spark plasma sintering using platinum foil
Papiya Biswas, Dibyendu Chakravarty, M. Buchi Suresh, Roy Johnson
Ceramics International 42 (2016) 17920–17923
11. Quasi-static compression behavior of nickel oxide, nickel oxide: zirconia, nickel:zirconia and nickel foams

Papiya Biswas, Pandu Ramavath, Chandhana Muraleedharan Nair, Madireddy Buchi Suresh, Nakula Ravi, Roy Johnson
Ceramics International 42 (2016) 10572–10578

12. Prediction and validation of buckling stress (σ_{crt}) of the ceramic honeycomb cell walls under quasi-static compression
Pandu Ramavath, **Papiya Biswas**, Nakula Ravi and Roy Johnson
Cogent Engineering 3 (2016) 1168068 1-7
13. Fabrication of IR Transparent Zinc Sulphide Plate by Chemical Vapor Deposition (CVD)
Papiya Biswas, Pandu Ramavath, Roy Johnson, Kurisett Venkata Ravi
Indian Journal of Chemical Technology 23 (2016) 400-404
14. Sonochemical Synthesis of Nano-Structured Hydroxyapatite with unique morphologies and Evaluation of Sintering Kinetics
Papiya Biswas, Bandhakavi Lakshmi Sindhura, Chandhana Muraleedharan Nair, Pandu Ramavath, Madireddy Buchi Suresh and Roy Johnson
Journal of Advances in Chemistry 11 (2015) 3789-3797
15. Processing of Alumina Honeycomb Catalyst Substrates and Studies on Methyl Cellulose Binder Burn Out Kinetics
Papiya Biswas, Y.S. Rao and Roy Johnson
Journal of Advanced Catalysis Science and Technology 2 (2015) 38-43
16. Binder burnout and sintering kinetic study of alumina ceramics shaped using methylcellulose
K. Rajeswari, S. Chaitanya, **P. Biswas**, M. Buchi Suresh, Y.S. Rao and Roy Johnson
Journal of Ceramic Processing Research 16 (2015) 24-31
17. Compaction Curves: A Tool for Qualitative Evaluation of Quasi-static Compaction Behavior of Ceramic Powders
Pandu Ramavath, **Papiya Biswas**, P. Suresh Babu, P. Laxminarayana and Roy Johnson
The Australian Ceramic Society 51 (2015) 130-136
18. Transparent Magnesium Aluminate Spinel: A Prospective Biomaterial for Esthetic Orthodontic Brackets
Manu Krishnan, Brijesh, Vimal Arora, **Papiya Biswas**, K Rajeswai, M B Suresh, Roy Johnson
Journal of Materials Science: Materials in Medicine 25 (2014) 2591-2599
19. Optical and mechanical properties of compaction and slip cast processed transparent polycrystalline spinel ceramics

Pandu Ramavath, **Papiya Biswas**, Kotikalapudi Rajeswari, Madireddy Buchi Suresh, Roy Johnson, Gadhe Padmanabham, Chandrashekhar Sadasiv Kumbhar, Tapas Kumar Chongdar, Nitin Madhusudan Gokhale
Ceramics International 40 (2014) 5575–5581

20. Colloidal Shaping of 8 mol% Ytria Stabilized Zirconia Electrolyte Honeycomb Structures by Microwave Assisted Thermal Gelation of Methyl Cellulose
K. Rajeswari, **P. Biswas**, M. B. Suresh, D. Das, U. S. Hareesh and R. Johnson
International Journal of Applied Ceramic Technology 11 (2014) 154-163

21. Hot isostatic pressing of ZnS powder and CVD zinc sulphide ceramics and comparative evaluation of physico-chemical, microstructural and transmission properties
P. Ramavath, **P. Biswas**, R. Johnson, G. J. Reddy, P. Laxminarayana
Transactions of Indian Ceramic Society 73 (2014) 299-302

22. Effect of Surface Passivation in Spinel Slurry towards Hydrolysis: Neutron Scattering and Rheological Studies
K. Rajeswari, **Papiya Biswas**, Roy Johnson, S. Prabhudesai, V.K. Sharma, S. Mitra and R. Mukhopadhyay
Journal of Dispersion Science and Technology 35 (2014) 1442-1448

23. Fabrication of Transparent Spinel Honeycomb Structures by Methyl Cellulose based Thermal Gelation Processing
P. Biswas, K. Rajeswari, P. Ramavath, Roy Johnson, H. S. Maiti
Journal of The American Ceramic Society 96 (2013) 3042–3045

24. Extrusion processing of Dense MgAl₂O₄ Spinel Honeycombs with Low Relative Density
P. Biswas, K. Rajeswari, V. Mahendar and Roy Johnson
Ceramics International 39 (2013) 9819–9821

25. Transparent Sub-micrometer Alumina from Lanthanum Oxide Doped Common Grade Alumina Powder
Papiya Biswas, Madugula Kiran Kumar, Kotikalapudi Rajeswari, Roy Johnson and Unnikrishnan Nair Saraswathy Hareesh.
Ceramics International 39 (2013) 9415–9419

26. Thermally Induced Gelation of Alumina Shaping- Neutron Scattering and Rheological Measurements

Papiya Biswas, K. Rajeswari, S. Chaitanya, Roy Johnson, S.A. Prabhudesai, V.K. Sharma, S. Mitra and R. Mukhopadhyay
Open Journal of Inorganic Chemistry 3 (2013) 48-54

27. Experimental Investigation on Flowability and compaction behavior of Spray granulated submicron Alumina Granules
Abhisek Choudhary, Pandu Ramavath, **Papiya Biswas**, Nukula Ravi and Roy Johnson
ISRN Ceramics 2013 (2013) 1-6
28. Diametral Deformation Behaviour and Machinability of Methyl Cellulose Thermal Gel cast
Processed Alumina Ceramics
P. Biswas, M. Swathi, P. Ramavath, K. Rajeswari, M. Buchi Suresh, Roy Johnson
Ceramic International, 38 (2012) 6115-6121
29. Mechanical Properties of Transparent Polycrystalline Alumina Ceramics Processed Using an Environmentally Benign Thermal Gel Casting Process
G. Sundararajan, **P. Biswas** and N. Eswara Prasad
Experimental Mechanics, 53 (2012) 123-129
30. Transparent Polycrystalline Ceramics: An Overview
R. Johnson, **P. Biswas**, P. Ramavath, R.S. Kumar and G. Padmanabham
Transaction of Indian Ceramic Society, 71 [2] (2012) 73-85
31. Low Temperature In-situ Reaction Sintering of Zircon: Alumina Composites Trough Spark Plasma Sintering
M. C. Anjali, **P. Biswas**, D. Chakravarty, U. S. Hareesh, Y.S. Rao and R. Johnson
Science of Sintering, 44 (2012) 323-330
32. Colloidal Shaping of Alumina Ceramics by Thermally Induced Gelation of Methylcellulose
Unnikrishnan Nair Saraswathy Hareesh, Rakesh Anantharaju, **Papiya Biswas**, Kotikalapudi Rajeswari, Roy Johnson
Journal of American Ceramic Society 94 [3] (2011) 749-753
33. Effect of Sphalerite to Wurtzite Crystallographic Transformation on Microstructure, Optical and Mechanical Properties of Zinc Sulphide Ceramics
P. Ramavath, **P. Biswas**, R. Senthil Kumar, V. Mahendar, G. V. N. Rao, U. S. Hareesh and R. Johnson
Ceramic International, 37 (2011) 1039-1046
34. Effect of post CVD thermal treatments on crystallographic orientation, microstructure, mechanical and transmission Properties of ZnS Ceramics

P. Biswas, R. Senthil Kumar, P. Ramavath, V. Mahendar, G. V. N. Rao, U. S. Hareesh and R. Johnson

Journal of Alloys Compounds, 496 (2010) 273-277

35. Effect of Bauxite Addition on Densification and Mullitization Behaviour of West Bengal Clay

N S Raut, **P Biswas**, T K Bhattacharya and K Das

Bulletin of Material Science, 31 [7] (2008) 995–999

List of Patents

1. Process of preparation of zinc sulphide free standing article by chemical vapour deposition.
R. Senthil Kumar, P. Ramavath, **P. Biswas**, U. S. Hareesh and R. Johnson
Indian patent (Granted) (Patent document no. 276019)
2. A novel process for producing IR transparent polycrystalline alumina articles and the articles so produced.
P. Biswas, K. Rajeswari, V. Mahender, P. Ramavath, A. Rajashekhar Reddy, R. Johnson, U. S. Hareesh
Application No.: 365/DEL/2012, Filing date: 08-02-2012

List of Book Chapters

1. Processing of Infrared Transparent Magnesium Aluminate Spinel: An Overview, **Papiya Biswas**, Roy Johnson, Yashwant Ramachandran Mahajan, Gadhe Padmanabham, Handbook of advanced ceramics and composites, Ed. Dr. Y R Mahajan and Dr. Roy Johnson, Springer International Publishing, 978-3-030-16346-4 (In press)
2. Zinc Sulphide Ceramics for Infrared Optics, Roy Johnson, **Papiya Biswas**, Pandu Ramavath and Yashwant R. Mahajan, Handbook of advanced ceramics and composites, Ed. Dr. Y R Mahajan and Dr. Roy Johnson, Springer International Publishing, 978-3-030-16346-4 (In press)

List of Award & Honors

1. Dr. R. L. Thakur Memorial Award -2016 for young scientist for contribution in the field of advanced ceramic science and technology
2. IRMA Award from Indian Refractory Makers Association for proficiency in studies in ceramic sciences for the year of 2005-2006
3. 2nd best award for oral presentation in the Platinum Jubilee Annual Session of the Indian Ceramic Society in 2011

4. Technology Award 2012 from ARCI for the successful development of ZnS domes