

Name

Dr. Roy Johnson

**Designation**

Scientist - F and Team Leader

Qualification

Ph.D. in Chemistry

Experience

20 years in Ceramic Processing

Research areas of interest

Transparent Ceramics, Chemical Vapour Deposition, Hot Isostatic Pressing, Cellular Ceramics, Rate Controlled Sintering Ceramic processing, Pressure casting and Thermal Analysis

List of journal publications

1. 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 American Ceramic Society (Accepted) (2013)
2. Colloidal Shaping of Alumina Ceramics by Thermally Induced Gelation of Methyl Cellulose. U. S. Hareesh, R. Anantharaju, P. Biswas, K. Rajeswari and Roy Johnson, Journal of American Ceramic Society, 94(3) 749-753 (2011).
3. Processing of Aluminium Oxynitride Through Aqueous Colloidal Forming Techniques R. Senthil Kumar, K. Rajeswari, B. Praveen, U. S. Hareesh and R. Johnson, Journal of American Ceramic Society, 93(2) 429-435 (2010)
4. 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, Ceramic International (in press) (2013)
5. Extrusion processing of Dense MgAl₂O₄ Spinel Honeycombs with Low Relative Density, P. Biswas, K. Rajeswari, V. Mahendar and Roy Johnson, Ceramic International (Accepted) (2013)

6. Eutectoid decomposition of aluminum titanate (Al_2TiO_5) ceramics under spark plasma (SPS) and conventional (CRH) thermal treatments, R. Papitha, M B Suresh, D Das and R Johnson, Ceramic International (Accepted) (2013)
7. Flow properties of spray dried alumina granules using powder flow analysis technique, Pandu Ramavath, Swathi M, Buchi Suresh M, Johnson R, Advanced Powder Technology, 24 667-673 (2013).
8. 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, 1-10 (2012) (DOI:10.1111/j.1744-7402.2012.02852.x).
9. High temperature flexure strength and thermal stability of near zero expanding doped Aluminium Titanate ceramics for DPF applications, R. Papitha, M. Buchi Suresh, Dibakar Das and Roy Johnson, International Journal of Applied Ceramic Technology, (2013) (in press)
10. Fracture Behaviour of Chemical Vapour Deposited and Hot Isostatically Pressed Zinc Sulphide Ceramics, P. Ramavath, V. Mahender, R. Johnson, Sweety Kumari and N. Eswara Prasad. Material Science and Engineering A, 528 (2011) 5030-5035.
11. 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.
12. Effect of Nano Grain Size on the Ionic Conductivity of Spark Plasma Sintered 8YSZ Electrolyte, K. Rajeswari, M. Buchi Suresh, Dibyendu Chakraborty, Dibakar Das and Roy Johnson, International Journal of Hydrogen Energy, 37 (2012) 511-517.
13. Synthesis
14. and evaluation of Thermal, electrical and electrochemical properties of $\text{Ba}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.04}\text{Zn}_{0.16}\text{Fe}_{0.8}\text{O}_{3-\delta}$ as a novel Cathode material for IT-SOFC applications, M. Haritha, M. Buchi Suresh and Roy Johnson, International Journal of Ionics, DOI 10.1007/s11581-012-0692-1 (2012)
15. The effect of strontium doping on densification and electrical properties of $\text{Ce}_{0.8}\text{Gd}_{0.2}\text{O}_{2-d}$ electrolyte for IT-SOFC application, M. Buchi Suresh and Roy Johnson, International Journal of Ionics, 18 (2012) 291-297
16. Mineral oxide doped aluminum titanate ceramics with improved thermo-mechanical properties, R. Papitha, M. Buchi Suresh, Dibakar Das, Roy Johnson, Journal of Ceramics, 214794, (2013) 1-9
17. 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.

18. Low Temperature In-situ Reaction Sintering of Zircon: Alumina Composites Through 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.
19. Structural and electrical properties of co-doped zirconia electrolyte for intermediate temperature solid oxide fuel cell application, M Buchi Suresh and Roy Johnson, *International Journal of Energy Research*, DOI:10.1002/er.1943 (2011).
20. Studies on sintering kinetics and correlation with the sinterability of 8Y zirconia ceramics based on the dilatometric shrinkage curves, K. Rajeswari, S. Padhi, A.R.S. Reddy, Roy Johnson, Dibakar Das, *Ceramics International* 39 (2013) 4985–4990
21. Studies on Ionic Conductivity of stabilized zirconia ceramics (8YSZ) densified through conventional and non-conventional sintering methodologies, K. Rajeswari, M. Buchi Suresh, U.S.Hareesh, Y.S.Rao, Dibakar Das and Roy Johnson, *Journal of Ceramics International*, 37 (2011) 3557-3564.
22. Hydrolysis control of alumina and AlN mixture for aqueous colloidal processing of aluminium oxynitride, R. S. Kumar, U. S. Hareesh, P. Ramavath, R. Johnson, *Ceramic International* 37 (2011) 2583-2590.
23. Experimental investigation on flowability and compaction behavior of spray granulated submicron alumina granules, Abhisek Choudhary, Pandu Ramavath, Papiya Biswas, Nakula Ravi and Roy Johnson, *ISRN Ceramics*, (Accepted) (2013).
24. Structural and Electrical Properties of co-doped zirconia electrolyte for Intermediate temperature Solid Oxide Fuel Cell application, M Buchi Suresh and Roy Johnson, *International Journal of Energy Research*, (in press) 2011
25. Effect of Nano Grain Size on the Ionic Conductivity of Spark Plasma Sintered 8YSZ Electrolyte K. Rajeswari, M. Buchi Suresh, Dibyendu Chakraborty, Dibakar Das and Roy Johnson, accepted, *International Journal of Hydrogen Energy*, 2011
26. Effect of Strontium doping on Densification and Electrical properties of $\text{Ce}_{0.8}\text{Gd}_{0.2}\text{O}_{2-\lambda}$ electrolyte for IT-SOFC application, M Buchi Suresh and Roy Johnson, in press, *Ionics*, 2011
27. 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
28. Fluoride removal from ground water by λ -alumina coated ceramic honeycomb, K. Dash, U. S. Hareesh, R. Johnson and J. Arunachalam, *Water Practice and Technology*, doi:10.2166/WPT.2010.061, 2011.

29. Rheological studies on aqueous alumina extrusion mixes, M. Swathi , R. Papitha, U. S. Hareesh, B. P. Saha and R. Johnson and M. Vijayakumar, Transactions of the Indian Institute of Metals, 64 (2011) 541-547
30. Effect of Post CVD Thermal Treatments on Crystallographic Orientation, Microstructure, mechanical and optical properties of ZnS ceramics, P. Biswas, P. Ramavath, R. Senthil Kumar, V. Mahendar, G. V. N. Rao, U. S. Hareesh, R. Johnson., Journal of Alloys and compounds, 496 (2010) 273-277
31. 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, R. Johnson, Ceramic International, 37 (2011) 1039-1046.
32. Micro structural control of stabilized zirconia ceramics (8YSZ) through modified conventional sintering methodologies. K. Rajeswari, A. Rajasekhar Reddy, U. S. Hareesh and R. Johnson, Science of Sintering, 42 (2010) 91-97.
33. Comparative Evaluation of Spark Plasma (SPS), Microwave (MWS), Two Stage (TSS) and conventional Sintering on the densification and micro-structural evolution of 8 YSZ zirconia ceramics, K. Rajeswari, U. S. Hareesh and R. Johnson, Science of Sintering, 42 (2010) 259-267.
34. Effect of Relative Density on the Compressive Flow Behaviour of Cordierite and Cordierite-Mullite Honeycombs, B.P. Saha, Sweety Kumari, N. Eswara Prasad and Roy Johnson Transactions of Indian Institute of Metals, Accepted for publication 2009.
35. Formation and densification behaviour of MgAl₂O₄ spinel: the influence of CaO and moisture in the precursors, I. Ganesh, K. Archana Teja, N. Thiyagarajan, B.M. Reddy and Roy Johnson, Journal of the American Ceramic Society, 88 (2005) 2752-2761.
36. Solid state reactions of cordierite precursor oxides and effect of substitution of CaO on the thermal expansion behaviour of cordierite honeycomb structures, R. Johnson, I. Ganesh, B.P. Saha, G.V.N. Rao and Y.R. Mahajan Journal of Materials Science, 38 (2003) 2953-2961
37. Microwave induced combustion synthesis of nanocrystalline TiO₂-SiO₂ binary oxides Ganesh, R. Johnson, Y.R. Mahajan, A. Khan, S. Madhavendra, and B.M. Reddy ,Journal of Materials Research, 19 (2004) 1015-1023
38. Microwave assisted solid-state reaction synthesis of MgAl₂O₄ spinel powders, I. Ganesh, B. Srinivas, R. Johnson, B.P. Saha and Y.R. Mahajan, Journal of European Ceramic Society, 24 (2) (2004) 201-207
39. Studies on energy absorption characteristics of cordierite-mullite honeycombs Roy Johnson, Vipin Jain, S.V. Kamat, I. Ganesh, B.P. Saha and Y.R. Mahajan, Journal of Advanced Materials, 35 (3) (2003) 3-8.

40. Rheometric Studies on Cordierite-Mullite Precursor Mix for Extrusion of Honeycomb Structures, S Chacko, Roy Johnson, Bhaskar Prasad Saha, I. Ganesh, M Vijaykumar and Y R Mahajan, Transactions of the Indian Ceramic Society, Vol. 63(2), p 119-123, 2004
41. Microwave assisted combustion synthesis of nanocrystalline MgAl₂O₄ spinel powders, Ganesh, R. Johnson, Y.R. Mahajan, S.S. Madavendra and B.M. Reedy, Ceramic International, 31 (2005) 67-74.
42. Effect of preparation method on sinterability and properties of nanocrystalline MgAl₂O₄ and ZrO₂-MgAl₂O₄ materials, Ganesh, B. Srinivas, R. Johnson, G.V.N. Rao, and Y.R. Mahajan, British Ceramic Transactions, 102 (3) (2003) 119-128.
43. Effect of rubber encapsulation on the comparative mechanical behavior of ceramic honeycombs with foams, Vipin Jain, R. Johnson, I. Ganesh, B.P. Saha and Y.R. Mahajan, Materials Science and Engineering A347 (2003) 109-122.
44. Glimpses of ceramics – ARCI's perspectives, N. Thiyagarajan, R. Johnson, B.P. Saha, Y.S. Rao, S. Kumar, I. Ganesh and Y.R. Mahajan, Proceedings of US-Japan Workshop (2002) on "Low cost production of ceramics and related materials", Osaka, Japan, pp. 49– 57, (2002)
45. An efficient MgAl₂O₄ spinel additive for improved slag erosion and penetration resistance of high-Al₂O₃ and MgO-C refractories, I. Ganesh, S. Bhattacharjee, B.P. Saha, R. Johnson, K. Rajeshwari, R. Sengupta, M.V. Ramana Rao, and Y.R. Mahajan, Ceramics International, 28 (3) (2002) 245-253
46. A new sintering aid for magnesium aluminate spinel, I. Ganesh, S. Bhattacharjee, B. P. Saha, R. Johnson, and Y. R. Mahajan, Ceramics International, 27 (7) (2001) 773-779
47. Thermal anisotropy in sintered cordierite monoliths, B.P. Saha, Roy Johnson, I. Ganesh, G.V.N. Rao, S. Bhattacharjee, and Y.R. Mahajan, Materials Chemistry and Physics, 67 (1-3) (2001) 140-145
48. Ceramic based catalytic converter for diesel vehicles, R. Johnson, B.P. Saha, I. Ganesh, V. Mahender, S. Bhattacharjee, Y. R. Mahajan, M.M.K. Khaja, Transactions of the Indian Ceramic Society, 59 (3) (2000) 93-95
49. Hidden ceramics in Energy and Transport Sectors- Current Status and Road Map for the Future", G. Sundararajan, U. S. Hareesh, R. Johnson, Y. R. Mahajan, Proceedings of the 1st International Congress on Ceramics, Toronto Canada, June 2006. Eds S. Freiman, The American Ceramic Society, p 553-594, 2007
50. Rate Controlled Sintering : A unique Concept for Micro-structural Control, U.S. Hareesh and R. Johnson, Trans. Ind. Ceram. Soc, 66, (4) (2007) 157 -166
51. Catalytic Oxidation of Carbon monoxide and hydrocarbons on supported Zinc ferrite, Roy Johnson, Rakesh kumar and D.M. Dhramadhikarai, J. of IPHE, 1 (1990) 1-7.
52. Atomic Absorption spectrophotometric determination of trace Metals in Suspended Particulate Matter, Roy Johnson and A.L. Aggarwal, Journal of Environmental Protection, 10 (1990) 614 – 618

53. Kaoline - based cordierite for pollution control, A. Yamuna, Roy Johnson, Y.R. Mahajan and M. Lalithmabika, Journal of European Ceramic Society, 24 (2004) 65-73.
54. Comparative Evaluation of Thermal Conductivity of Zirconia Solid and Honeycomb Structures, Experimental Heat Transfer: B. P. Saha, R. Johnson & V. Jayaram, 25, 4, 267-281, 2012
55. Pressure slip casting: A novel process for producing alumina bodies with superior green density, Y. S. Rao and R. Johnson, Interceram, 3 (2013).

List of patents (Indian)

1. 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)
2. A 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 IN2009005-I1)
3. An improved method for making honeycomb extrusion die and a process for producing Ceramic honeycomb structures using the die Iouri Fomichev, , I.Ganesh, B.P. Saha Roy Johnson, N. Thiyagarajan, Y.R. Mahajan, and V. Mahender. (Indian Patent. No. 198045, Dated : 3 -07-01)
4. New Composite Material (Ceramic Honeycomb based) having good Shock Attenuating Properties, Roy Johnson, B.P.Saha and Y.R. Mahajan (Indian Patent. No. 194524 Dated 06 05-98)
5. An improved process for the production of dense magnesium aluminate spinel grains, I.Ganesh, Subir Bhattacharjee, B.P. Saha, Roy Johnson, and Y.R. Mahajan,(Indian Patent. No. 200272 Dated 07-01-99)
6. Improved process for the preparation of magnesium aluminate spinel grain,M.C.S. Rao, Y.R. Mahajan, S. Bhattacharjee, Roy Johnson, B.P. Saha, and I Ganesh,(Indian Patent. No. 198208 Dated 06-07-00)
7. An improved process for preparing ceramic crucibles having high thermal shock resistance and high slag penetration resistance useful for carbon and sulfur analysis of ferrous alloys and steel samples and the ceramic crucibles so prepared,B.P. Saha, Y.R. Mahajan, S. Bhattacharjee, I. Ganesh and Roy Johnson,(Indian Patent. No.2007700 Dated 2 0-09-00)
8. An Indirectly Heated Catalytic Convertor for use in Vehicles, G.S. Bhattacharjee, Roy Johnson, B.P.Saha, (Indian Patent. No. 185433 Dated August 25, 1994)

9. Improved additive composition useful for the preparation of alumina based abrasion resistant material having improved wear properties and methods for their preparation B.P. Saha, Roy Johnson, I. Ganesh, S. Bhattacharjee, and Y.R. Mahajan (Appl. No. 122/MAS/2000, Date of filing: 18 February, 2000)
10. Ceramic Honeycomb Based Energy Efficient Air Heater, V.V.S. Rao, Roy Johnson, B.P.Saha and Y.R. Mahajan, (Indian Patent. No. 2007787 Dated 07-01-99)

Contribution to books

1. Title of the book: "Studies on Redox Catalysts in Air Pollution Control" by Roy Johnson and A.N. Garg, Published by LAMBERT Academic GmbH, Saarbrucken, Germany
ISBN: 978-3-8465-8064-6, 2011
2. Cellular Solids: Unique Engineering Solids, Roy Johnson and Y.R. Mahajan, (Ed) R. Chidambaram, Material Research : Current Scenario and Future Projections, Material Research Society of India (2002), India

Affiliation to Professional Societies

1. Member (2008-2010) American Ceramic Society
2. Associate Member of Institution of Chemistry (AIC), India.
3. Life Member of Indian Association for Environmental Management (IAEM), NEERI, Nagpur.
4. Life Member of Indian Association for Nuclear Chemists and Allied Scientists (IANCS, Bombay).
5. Member (licentiate) of Royal Society of Chemistry, London. (1995)
6. Life Member, Indian Ceramic Society
7. Licentiate Pastor of Sharon Fellowship Church (2006)

Awards and honors

1. Received Materials Research Society (MRSI- Medal) 2011
2. Received Malaviya Award of the Indian Ceramic Society, 2011

3. ARCI Technology award 2012
4. Received Doctor of Ministry (D. Min) , 2010 from Logos Study Centre (affiliated with International Institute of Church Management, Florida, USA)
5. Listed in Marquis Who'.s Who in the World (2011) , USA for the significant contributions to the betterment of contemporary society
6. Received the Best product Award for the thin walled Honeycomb structures during POWMET-99 during the international conference and annual technical meeting of Powder Metallurgy Association of India, 1999.
7. Received the Best paper Award for presentation on the mechanical behaviour of cordierite-Mullite honeycomb with foams during 13th Annual General meeting of Material Research Society of India, February 2002
8. Received the Best paper Award for presentation on the Rheometric Studies on cordierite Mullite precursor mix for extrusion of honeycombs during the 66 th Annual Session of Indian Ceramic Society. December 2002
9. Received the Best poster Award by the group for the presentation on Fracture behaviour of ZnS Ceramics during the 73 rd Annual Session of Indian Ceramic Society. December 2009

Contact information

Scientist-F and Team Leader

Center for Ceramic Processing, ARCI

Balapur

Hyderabad-500 05

Phone (Office): 040-24443169

Email: royjohnson@arci.res.in