

## List of publication for Mr. Ashis Kumar Mandal

### In peer reviewed journals:

#### 2021

29. Microwave and conventional preparation of  $P_2O_5 - ZnO - Al_2O_3 - Na_2O$  Glass:  $Eu^{3+}$  ion as luminescent probe” Ashis Kumar Mandal, **Transactions of the Indian Institute of Metals** 74(4), 827-837 [https:// doi.org/10.1007/s12666-020-02163-9](https://doi.org/10.1007/s12666-020-02163-9); IF: 1.205 (2021) **IF: 1.205 (2021)**
28. **Effect of melting time on volatility, OH in glass in microwave processing**, *Materials and Manufacturing Processes*, (2021) 36:4, 426-434, DOI: 10.1080/10426914.2020.1843670 (IF : 3.046)

#### 2019

27. Green synthesis of iron oxide nanoparticles for arsenic remediation in water and sludge utilization, Abhradeep Majumder · Lata Ramrakhiani · Debarati Mukherjee · Umesh Mishra · Avik Halder · Ashish K. Mandal · Sourja Ghosh, **Clean Technologies and Environmental Policy**. <https://doi.org/10.1007/s10098-019-01669-1>.
26. Utilization of multi-metal laden spent biosorbent for removal of glyphosate herbicide from aqueous solution and its mechanism elucidation, Lata Ramrakhiani, Sourja Ghosh, Ashis K. Mandal, Swachchha Majumdar, **Chemical Engineering Journal** 361 (2019) 1063–1077.

#### 2018

25. Preservation of higher Fe[II] content in borosilicate glass by microwave irradiation in air, Ashis K.Mandal Ranjan Sen, **Materials Research Bulletin** 108 (2018) 156–162 <https://doi.org/10.1016/j.materresbull.2018.08.034>
24. Mandal AK, Sen R. Optimization of melting parameters and minimizing OH content in  $SiO_2 - B_2O_3 - Na_2O - BaO$  glass system in microwave heating. *Int J Appl Glass Sci.* 2018;00:1-9. <https://doi.org/10.1111/ijag.12439>.
23. Preparation of colourless phosphate glass by stabilising higher Fe[II] in microwave heating, A. K. Mandal\*, B. Mandal, Kavya I, T.G. Ajithkumar, A. Halder, P. K. Sinha, and Ranjan Sen, **Scientific Reports** | (2018) 8:6195 | DOI:10.1038/s41598-018-24287-1
22. Preparation of Chromium doped phosphate glass adopting microwave irradiation and comparative analysis of properties with conventional glass, Arijit Basak, Lata Ramrakhiani, Sourja Ghosh, Ranjan Sen, Ashis K Mandal\*, **Journal of Non-Crystalline Solids** 500 (2018) 11–17 (2018). <https://doi.org/10.1016/j.jnoncrysol.2018.04.014>

### 2017

- 21 . A Comparative Property Investigation of Lithium Phosphate Glass Melted in Microwave and Conventional Heating, Avik Halder, Biswajit Mandal, Sourindra Mahanty, Ranjan Sen and **Ashis Kumar Mandal\***, **Bull. Mater. Sci.**, 40, 5 (2017) 999–1006; DOI 10.1007/s12034-017-1437-6.
20. Industrial waste derived biosorbent for toxic metal remediation: Mechanism studies and spent biosorbent management, Lata Ramrakhiani, Avik Halder, Abhradeep Majumder, **Ashis K. Mandal**, Swachchha Majumdar, Sourja Ghosh, *Chemical Engineering Journal* 308 (2017) 1048–1064.

### 2016

19. Investigation of iron redox ratio in zinc borate glass prepared in microwave heating and comparison with conventional glass, Biswajit Mandal, Avik Halder, Prasanta Kumar Sinha, Ranjan Sen, **Ashis Kumar Mandal**, *Journal of Non-Crystalline Solids* 450 (2016) 12–17. DOI: 10.1016/j.jnoncrysol.2016.07.028
18. A comparative spectrophotometric study using ferrozine and 1, 10 ortho-phenanthroline to evaluate the iron redox ratio ( $\text{Fe}^{2+}/\Sigma \text{Fe}$ ) in glass prepared by microwave heating, Biswajit Mandal, Prasanta Kumar Sinha, Ranjan Sen And **Ashis Kumar Mandal\***, ANALYTICAL SCIENCES MAY 2016, VOL. 32, Page 571-576. DOI: 10.2116/analsci.32.571
17. An Overview on Microwave Processing of Material: A Special Emphasis on Glass melting, **Ashis K. Mandal\*** and Ranjan Sen; **Materials and Manufacturing Processes, 2016**, DOI: 10.1080/10426914.2016.1151046
16. Fabrication of Reliable Joints of Alumina Ceramics by Microwave-Assisted Reactive Brazing Technique, M Shukla, S Ghosh, N Dandapat, **AK Mandal**, VK Balla - **MATERIALS TRANSACTIONS**, 57, 3, **2016**, 392-396
15. Microwave-assisted brazing of alumina ceramics for electron tube applications ; Mayur Shukla, Sumana Ghosh, Nandadulal Dandapat, **Ashis K Mandal** and Vamsi K Balla , *Bulletin of Materials Science* · Vol. 39, No. 2, April 2016, pp. 587–591, DOI: 10.1007/s12034-016-1167-1
14. Comparative Study on Conventional Sintering with Microwave Sintering and Vacuum Sintering of  $\text{Y}_2\text{O}_3\text{-Al}_2\text{O}_3\text{-ZrO}_2$  Ceramics, Mayur Shukla, Sumana Ghosh, Nandadulal Dandapat, **Ashis K. Mandal**, Vamsi K. Balla, *Journal of Materials Science and Chemical Engineering*, **2016**, 4, 71-78.

### 2015

13. Microwave absorption of barium borosilicate, zinc borate, Fe-doped alumino-phosphate glasses and its raw material, **Ashis K Mandal \***, Ranjan Sen, *Technologies (Microwave Energy Applications)* **2015**, 3(2), 111-125; doi:10.3390/technologies3020111.

12. Higher Fe<sup>2+</sup>/ total Fe ratio in Iron doped phosphate glass melted by microwave heating, **Ashis K. Mandal\***, Prasanta K. Sinha, Dipankar Das, Chandan Guha, Ranjan Sen, **Materials Research Bulletin** 63 (2015) 141–146.

11. Energy efficient melting of Glass for Nuclear Waste Immobilization using Microwave radiation; **Mandal A.K.\***, Sen S., Mandal S. , Guha C. and Sen R. **International Journal of Green Energy** (2015) **12**, 1280–1287

#### 2014

10. Microwave and conventional preparation of Zinc Borate glass: Eu<sup>3+</sup> ion as luminescent probe, **Ashis K. Mandal\***, S. Balaji and Ranjan Sen, Journal of Alloys and Compounds 615 (2014) 283–289.

9. Cordierite based glass-ceramic glazed floor tile by microwave processing, S. Ghosh, K. S. Pal, **A. K. Mandal**, N. Biswas, M. Bhattacharya, P. Bandyopadhyay, **Materials Characterization** 95 (2014) 192 – 200.

8. Microwave preparation of SiO<sub>2</sub> - B<sub>2</sub>O<sub>3</sub> -Na<sub>2</sub>O- K<sub>2</sub>O- CaO-Fe<sub>2</sub>O<sub>3</sub> - TiO<sub>2</sub> Glass system, **Ashis Kumar Mandal\***, Prasanta Kumar Sinha, Santanu Sen, Sitendu Mandal, Chandan Guha and Ranjan Sen. **J. Chem. Chem. Eng.** 8 (2014) 349-357.

#### 2013

7. Preparation of Homogeneous Barium Borosilicate Glass Using Microwave Energy; **Ashis Kumar Mandal\***, Dinesh Agrawal and Ranjan Sen , **Journal of Non-Crystalline Solids**, Volumes 371–372, 1 July 2013, Pages 41–46.

6. Preparation of Alumino-Phosphate Glass by Microwave Radiation, **Ashis K. Mandal\***, Kaushik Biswas, K. Annapurna, C. Guha and Ranjan Sen **J. Mater. Res.**, Vol. 28, No. 14, Jul 28, 2013, pp. 1955-61

5. Indigenous Development of High Energy, High Power Laser and its Amplifier Optics, A.S. Joshi, A.K. Sharma, M.P. Kamath, R.K. Patidar, D. Daiya, P.K. Tripathi, M.S. Ansari, N. Sreedhar, R. Chandra, B. Singh, R. Pareek, S. Chatterjee, K. Annapurna, B. Karmakar, **A.K. Mandal**, R. Chakraborty, R. Sen, C.P. Navathe, P.A. Naik and P.D. Gupta, Kiran: A bulletin of Indian Laser Association, Vol 24, No 3, P-12-19, December 2013.

#### 2012

4. Energy Transfer based NIR to Visible Upconversion: Enhanced Red Luminescence from Yb<sup>3+</sup>/Ho<sup>3+</sup> co-doped Tellurite Glass, Sathrava da Balaji, **Ashis K. Mandal** and K Annapurna, Optical Materials, 2012; Volume 34, Issue 11, September 2012, Pages 1930–1934.

3. Measurement of the figure of merit of indigenously developed Nd-doped phosphate laser glass rods for use in high power lasers, A P Kulkarni, S Jain, M P Kamath, A S Joshi, P A Naik, P D Gupta, K Annapurna, **A K Mandal**, B Karmakar, R Sen, Pramana- Journal of Physics (Impact Factor: 0.56). 01/2014; DOI:10.1007/s12043-013-0656-7.

## 2010

2. Time resolved fluorescence and energy transfer analysis of  $\text{Nd}^{3+}$ - $\text{Yb}^{3+}$ - $\text{Er}^{3+}$  triply-doped Ba-Al-metaphosphate glasses for an eye safe emission (1.54  $\mu\text{m}$ ) , A. D. Sontakke, K.Biswas, **A. K. Mandal**, K. Annapurna, J Fluoresc (2010) 20:425–434
- 11 Concentration quenched luminescence and energy transfer analysis of  $\text{Nd}^{3+}$  ion doped Ba-Al-metaphosphate laser glasses A.D. Sontakke · K. Biswas · **A.K. Mandal** · K. Annapurna, Appl Phys B (2010) 101: 235–244.

**In Conference / Seminar**

<i>Sl</i>	<i>Title</i>	<i>Author</i>	<i>Details of conference /others</i>
1.	Microwave Heating : A novel Energy Efficient Technique to alter Glass Property,	Ashis Kumar Mandal,	Institute Internal Seminar, CSIR-Central Glass & Ceramic Research Institute, Kolkata, February 18, 2021.
2.	Comparing the effect of melting times on volatility loss of volatile ingredient in conventional and microwave heating,	Yudhisthir Mandal and Ashis Kumar Mandal,	National seminar on “Propelling innovations in Glass and Ceramics for Atma Nirbhar Bharat” 84 <sup>th</sup> Annual Session of Indian Ceramic Society, Kolkata Chapter, at CGCRI December 10-12 2020
3.	Toxic elements in waste: Potential resources for color glass , (excellence award)	Ashis Kumar Mandal,	9th IconSWM - CE 2019: 9th International Conference on Sustainable Waste Management towards Circular Economy, KIT(DU), Bhubaneswar, Odisha, India; November 27-30, 2019 (excellence award)
4.	Toxic Waste: A potential resource in color glass making	Ashis Kumar Mandal	, “Indo-German Workshop on waste to wealth” at CSIR AMPRI, Bhopal 25-26 February 2019 (Invited Talk).
5.	Industrial waste activated sludge as promising biosorbent for wastewater treatment,	Lata Ramrakhiani, Ashis K. Mandal, Swachchha Majumdar and Sourja Ghosh,	National conclave on Water resources management , CSIR-Central Glass and Ceramic Research Institute, Kolkata, January 17-18, 2019
6.	Waste activated tannery	Lata Ramrakhiani, Ashis K. Mandal,	“Indo-German Workshop on waste

	<i>sludge as promising biosorbent for wastewater treatment,</i>	<i>Swachchha Majumdar and Sourja Ghosh</i>	<i>to wealth” at CSIR AMPRI, Bhopal 25-26 February 2019.</i>
7.	A safe disposal of arsenic rich sludge obtained from treatment of contaminated groundwater in glass making,	Ashis Kumar Mandal, Sourja Ghosh,	<i>International Conference on Water Resources and management, CSIR-CGCRI, Kolkata, January 11-1, 2018.</i>
8.	Influence of microwave heating on preparation of colourless phosphate glass reducing effect of iron impurity,	<b>Ashis Kumar Mandal<sup>†</sup></b> , Biswajit Mandal, Avik Haldar and Ranjan Sen	<i>International Conference on Advances in Glass Science and Technology (ICAGST-2017), CGCRI, Kolkata, January 23-25, 2017</i>
9.	A comparative properties analysis of transition metal doped glass prepared in microwave and conventional heating	A. Basak, A. Halder, R. Sen and <b>A. K. Mandal*</b>	<i>International Conference on Advances in Glass Science and Technology (ICAGST-2017), CGCRI, Kolkata, , January 23-25, 2017</i>
10.	Small Scale Glass Melting Adopting Different Heating Technique	Sanjib Samaddar and Ashis Kumar Mandal,	<i>International Conference on Advances in Glass Science and Technology (ICAGST-2017), CGCRI, Kolkata, January 23-25, 2017</i>
11.	Investigation of Glass Preparation using Tannery Solid Waste,	A. Halder, L. Ramrakhiani, S. Ghosh, R. Sen and <b>A. K. Mandal*</b>	<i>International Conference on Advances in Glass Science and Technology (ICAGST-2017), CGCRI, Kolkata, January 23-25, 2017</i>
12.	Inertization of hazardous Metal laden Biosorbent in glass for safe disposal after heavy metal bioremediation,	L.Ramrakhiani, A. Halder, A.K.Mandal, S. Majumdar, S.Ghosh*	<i>International Conference on Advances in Glass Science and Technology (ICAGST-2017), CGCRI, Kolkata, January 23-25, 2017.</i>

13.	<i>Green Synthesis of Glass using Microwave Heating, (Hall presentation),</i>	A. K. Mandal and R. Sen	“India International Science Festival- Young Scientists’ Conclave (IISF-2016), CSIR-National Physical Laboratory, New Delhi, 7th – 11th December, 2016.
14.	Toxic Metal Removal Using Biosorption Process and Inertization of Generated Hazardous Metal Laden Biosorbent, <b>(IconSWM 2016 Excellent Paper Award)</b>	L. Ramrakhiani, A. Halder, A.K. Mandal, S. Majundar, S. Ghosh,	6th International Conference on Solid Waste Management, 6th IconSWM 2016, Jadavpur University, Kolkata, India, November 24 - 26, 2016.
15.	Microwave heating : an alternate process of glass melting  <b>( Invited Talk)</b>	Ranjan Sen and Ashis Kumar Mandal,	<b>24th International Congress on Glass (ICG 2016)</b> , Shanghai International Convention Center (SHICC), China, April 7th to 11th, 2016
16.	Optimization of Melting Parameters to Develop Borosilicate Glass Using Microwave Energy”	A. K. Mandal and R. Sen,	<b>CHEMCON 2015</b> , the 68th Annual Session of the Indian Institute of Chemical Engineers at Indian Institute of Technology (IIT) Guwahati, Assam; 27-30 December, 2015
17.	Small Scale Glass Melting: A Comparative Study in Microwave and Conventional Heating,	<b>Ashis K. Mandal*</b> , Biswajit Mandal, Avik Halder, Santanu Sen and Ranjan Sen ,	National Conference on Functional Glasses / Glass-Ceramics and Ceramics” <b>(NCFGC - 2015)</b> , Nagpur, December 10-12, 2015.
18.	A Comparative property investigation of lithium alumino phosphate glass melted by microwave and conventional heating”	A. Haldar, B. Mandal, R. Sen and <b>A. K. Mandal,</b>	An workshop on Indian Innovations in Materials Research: New Materials and Process, CSIR-Central Glass and Ceramic Research Institute , Kolkata, India,

			<b>June 25-27, 2015.</b>
19.	Investigation of enhanced redox ratio ( $Fe^{2+}/total\ Fe$ ) in Barium Borosilicate glass melted under microwave heating,	B. Mandal, P. K. Sinha, K. Annapurna, R. Sen and <b>A. K. Mandal.</b>	<b>First</b> International Conference On Emerging Materials: Characterization & Application (EMCA-2014)CSIR-CGCRI, Kolkata, INDIA during December 4-6, 2014. ( Page 119)
20.	Preparation and Characterization of Iron Doped Alumino-Phosphate Glass by Microwave and Conventional Heating,	<b>Mandal A.K.</b> and Sen R,	12th European Society of Glass-ESG Conference ( <b>ESG 2014</b> ), Parma, Italy , 21-24 September 2014
21.	Microwave Preparation of Calcium-Borosilicate Glass for Nuclear Waste Immobilisation,	Mandal A.K., Mandal S., Sen S., Sen R.	23rd International Congress on Glass ( <b>ICG 2013</b> ), Prague, Czech Republic during July 01- 05, 2013.
22.	“Self Stirring Effect in Glass Melted Using Microwave Radiation”,  <b>( BEST POSTER).</b>	<b>Ashis Kumar Mandal</b> and Ranjan Sen;	National Symposium on Materials and Processing-2012 ( <b>MAP-2012</b> ); BARC, Anushaktinagar Mumbai- 400 094 during October 10-12, 2012.
23.	Homogeneous Barium-boro-silicate glass melted by microwave radiation,	<b>Ashis Kr Mandal,</b> D. Agarwal, R. Sen	“The Second Global Congress on Microwave Energy Applications (2GCMEA 2012)”. <b>2GCMEA 2012</b> ; Long Beach, California, USA; July 23-27, 2012
24.	“Microwave Melting of Glass: A Prospective Green Processing Technology”,	<b>A.K. Mandal*</b> , A. Dharini and R Sen	International Conference on Green Technology, SASTRA University, Thanjavur, Tamil Nadu, July 26-27, 2013.
25.	Preparation of Phosphate glass by microwave radiation: an energy efficient method	<b>Ashis K. Mandal,</b> Kaushik Biswas,	International Conference on Specialty Glass & Optical Fiber: Materials, Technology & Devices ( <b>ICGF-2011</b> ), held at CGCRI,

		K. Annapurna and Ranjan Sen	Kolkata (India) during August 4-6, 2011 .
26.	“Energy Efficient Melting of Borosilicate Glass Using Microwave Radiation”	<b>Mandal A. K.</b> *, Mondal S. and Sen R.	A National Seminar on Traditional Knowledge and Practices for Sustainable Development ( <b>TKPSD 2013</b> ) organized at CSIR-Institute of Minerals and Materials Technology, Bhubaneswar during on April 15, 2013.
27.	‘Iron impurity in Nd <sup>3+</sup> doped phosphate laser glasses – influence on spectroscopic performance ( poster)	Atul D. Sontakke, Kaushik Biswas, <b>Ashis K. Mandal,</b> K. Annapurna	DAE BRNS National Laser Symposium ( NLS -20) held at Anna University , Chennai ( India) during January 9-12, 2012
28.	Optical Probing and Host Dependent luminescence of Europium Doped Transparent Glass-Ceramics Containing Fluoride Nano-Crystals,	K. Biswas, A. D. Sontakke, <b>A. K. Mandal,</b> R. Sen, K. Annapurna,	International Conference on Specialty Glass & Optical Fiber: Materials, Technology & Devices (ICGF-2011), held at CGCRI, Kolkata (India) during August 4-6, 2011.
29.	Glasses for High Power Lasers	A S Joshi, R Sen, S Chatterjee, K Annapurna, B Karmakar, <b>A K Mandal,</b> R Pareek, and M P Kamath,	International Conference on Specialty Glass & Optical Fiber: Materials, Technology & Devices (ICGF-2011), held at CGCRI, Kolkata (India) during August 4-6, 2011.
30.	‘Dependence of luminescence properties in Europium doped BaF <sub>2</sub> and BaYF <sub>5</sub> nanocrystalline glass ceramic system’,	<i>K. Biswas, A. D. Sontakke, <b>A. K. Mandal,</b> K. Annapurna,</i>	<i>International conference on fundamentals and applications of nano-science and technology (ICFANT) held at Jadavpur University (India) during 9 – 11 December 2010.</i>

31.	Host sensitive energy transfer of $\text{Nd}^{3+} \rightarrow \text{Yb}^{3+}$ in oxy-fluoride glass and glass ceramics containing $\text{NaYF}_4$ nano-crystals,	Atul D. Sontakke, Kaushik Biswas, <b>Ashis K. Mandal</b> , K. Annapurna *	<i>3<sup>rd</sup> National Symposium for Materials Research Scholars (MR – 10), IIT Bombay during 07-08 May 2010.</i>
32.	Effect of local environment on photoluminescence properties of Eu doped transparent glass-ceramics containing fluoride nano-crystals’ ,	<b>A. K. Mandal</b> , K. Biswas, A. D. Sontakke, K. Annapurna	<i>International workshop and symposium on the synthesis and characterization of Glass/Glass-ceramics(IWSSCGGC-2010) held at C-MET, Pune (India) during 7 – 10 July 2010.</i>
33.	Structural and luminescence properties of nanocrystalline Eu: $\text{NaYF}_4$ containing transparent oxyfluoride glass ceramics	Atul D. Sontakke, <b>Ashis K. Mandal</b> , Kaushik Biswas and K. Annapurna	<i>National Seminar On Advanced Applications Of Glasses, NSAAG-2010, VNIT Nagpur ( 22-23 March 2010)</i>
34.	‘Energy transfer based eye safe infra-red luminescence from $\text{Nd}^{3+}$ - $\text{Yb}^{3+}$ - $\text{Er}^{3+}$ triple ion doped metaphosphate glasses’  <b>(BEST POSTER)</b>	A. D. Sontakke, K. Biswas, <b>A. K. Mandal</b> , K. Annapurna	<i>International Conference on Advanced Functional Materials (ICAFM-09), NIIST, Trivandrum, Kerala (India) during 9 – 10 Dec 2009.</i>