Short Bio-data

Name: Dr. Soma Dutta

Designation: Senior Principal Scientist

Division: Materials Science

Area of Expertise:,Thin Films, Nanostructures and MEMS, Functional Materials and Devices

Specialisation: Functional and Smart Materials /Experimental Condensed Matter Physics

Subject area willing to guide the student: Physics, Materials Science, Chemistry

Publication (Last 5 years):

1. Jayakrishnan, Ampattu Ravikumar, Anina Anju Balaraman, Surya Kiran P. Nair, **Soma Dutta**, and José PB Silva. "Recent Development of Lead-free Relaxor Ferroelectric and Antiferroelectric Thin Films as Energy Storage Dielectric Capacitors." Journal of the European Ceramic Society (2024).

2. Jeyaseelan, A. Antony, Anina Anju Balaraman, and **Soma Dutta**. "Enhanced piezoelectric properties in europium-doped lead lanthanum zirconate titanate thin films." Thin Solid Films 790 (2024): 140214.

3. Anina Anju Balaraman, Ampattu R. Jayakrishnan, Antony Jeyaseelan A, Balaram Sahoo, and **Soma Dutta**. "Investigation on Multifunctional Properties of (Pb0. 92La0. 08)(Zr0. 55Ti0. 45) O3 Relaxor Ferroelectric Thin Film for Energy-Harvesting and Storage Applications." Energy Technology 12, no. 2 (2024): 2300685.

4. Jeyaseelan, A. Antony, Manoranjan Sahoo, and **Soma Dutta**, "Investigation of Yb3+ ion doping on ferroelectric and piezoelectric behaviour of PLZT film." Applied Physics A 129.11 (2023): 809.

5. Sruthi S., Manoranjan Sahoo, and **Soma Dutta**, "Thick films for high-temperature piezoelectric applications-a future reference" Journal of Electroceramics, 51 (2023), 269–280.

6. Anina Anju Balaraman, Antony Jeyaseelan A, **Soma Dutta**, “Process-Controlled Domain Switching and Improved Ferroelectric Properties in Lanthanum-Modified Lead Zirconate Titanate Films”, Journal of Materials Engineering and Performance, 33 (2024), 2585–2598.

7. M. A. Jalaja, and Soma Dutta, "Complex Impedance Spectroscopy studies to unravel electrical properties and processes in Al+ 3-modified PLZT." Journal of Materials Science: Materials in Electronics (2022),1-11.

8. Hitesh Borkar, Vishwajit Manohar Gaikwad, Soma Dutta, M. Tomar, Vinay Gupta, Ashok Kumar, ‘’Lead-free laminated structures for eco-friendly energy harvesters and magnetoelectric sensors’’, Journal of Physics and Chemistry of Solids, 160 (2022), 110306.

9. Anina Anju Balaraman, Soma Dutta, ‘Inorganic dielectric materials for energy storage applications: a review’’, J. Phys. D: Appl. Phys. 55 (2022), 183002.

10. Sudhanshu Tiwari, Randhir Kumar, Ajay Dangi, Jeyaseelan A Antony, Soma Dutta and Rudra Pratap, ‘’ Low cost, contamination-free, and damage-free fabrication of PZT MEMS on SOI substrate’’, J. Micromech. Microeng. 32 (2022), 025003.

11. Brigita Kmet, Danjela Kuš̌cer, Soma Dutta, Hana Uršiˇc, Aleksander Matavž, Franck Levassort, Vid Bobnar, Barbara Maliˇc, Andreja Benˇcan, ‘’ Screen Printed Copper and Tantalum Modified Potassium Sodium Niobate Thick Films on Platinized Alumina Substrates’’, Materials 14 (2021), 7137.

12. Rohit Bhowal, Anina Anju Balaraman, Manasi Ghosh, Soma Dutta, Krishna Kishor Dey, and Deepak Chopra, ‘’Probing Atomistic Behavior To Unravel Dielectric Phenomena in Charge Transfer Cocrystals’’, J. Am. Chem. Soc. 143 (2021), 1024.

13. M. A. Jalaja, and Soma Dutta, ‘’ Transport properties of AgPb16SbTe18 prepared by the inclusion of nano AgSbTe2 into PbTe matrix’’, Journal of Materials Science: Materials in Electronics 31 (2020), 17381.

14. Bhuvana Nagarajan, Soma Dutta, and Rudra Pratap, ‘’ Development and performance evaluation of a piezoceramic coated flapping wing’’, Smart Mater. Struct. 29 (2020), 115013

15. M. A. Jalaja and Soma Dutta, ‘’Multifunctional KBiFe2O5 thick film: advances in functional properties’’, Journal of Materials Science: Materials in Electronics 31 (2020), 10234

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17. Kaustav Roy, Harshvardhan Gupta, Vijayendra Shastri, Ajay Dangi, Antony Jeyaseelan, Soma Dutta, and Rudra Pratap, ‘’ Fluid Density Sensing Using Piezoelectric Micromachined Ultrasound Transducers’’, IEEE SENSORS JOURNAL, 20 (2020), 6802.

18. Antony Jeyaseelan A, Dinesh Rangappa, Soma Dutta, ‘’Double doping effect on ferroelectric and leakage current behavior of Pb(Zr0.52Ti0.48)O3 thin film’’, Ceramics International 45 (2019), 25027.

19. M. A. Jalaja and Soma Dutta, ‘’Optically controlled polarization, photovoltaic and switchable diode behavior in multifunctional KBiFe2O5 composite film’’, Ceramics International 45 (2019), 22553.

20. M. A. Jalaja and Soma Dutta, ‘’Improved ferroelectric properties in KBiFe2O5-polymer composite film’’, Ceramics International 45 (2019), 10044.