पदार्थ अभियांत्रिकी एवं निरूपण में आयन बीम पर 7वाँ अंतरराष्ट्रीय सम्मेलन (आईबीएमईसी-2022)

नवंबर 16-19, 2022

7th International Conference on Ion Beams in Materials Engineering and Characterization (IBMEC-2022)

November 16-19, 2022

सार पुस्तिका

Abstract Booklet

अंतर-विश्वविद्यालय त्वरक केंद्र, नई दिल्ली, भारत
Inter-University Accelerator Centre, New Delhi, India

P-26	Tuning the electronic and magnetic behavior in Au irradiated non-magnetic TiSe2 crystals with dual native defect	Utkalika P. Sahoo	66
P-27	100 MeV Sulfur Ion Irradiation Studies on 2N 3866 NPN Transistor at Low Temperature	Darshan M	67
P-28	Investigations on Transport Properties of Manganite Based p-n Interfaces: Role of SHI Irradiation and Annihilation	Mayur Parmar	68
P-29	Electrical, optical and microstructural modifications in GaN devices and epilayers exposed to swift heavy ion irradiation	Kamal Singh	69
P-30	Synthesis and Characterization of poly (Starch-N-cyclohexylacrylamide) CaCO3 Nanocomposites	Kayalvizhy Elumalai	70
P-31	Effect of Gamma irradiation on Polycaprolactone/Hydroxyapatite composite film for biomedical applications	Monica Susai Mary S	71
P-32	100 MeV Ni7+ ion irradiation induced structural, optical and morphological properties on lithium borate glasses	Karthika S	72
P-33	Swift Heavy Ion (SHI) Irradiation Induced Modifications in Ca-doped YMnO3 Thin Films: Effect of Oxygen Vacancy Gradient	Chintan Panchasara	73
P-34	Silicon negative ion implantation effects in gallium nitride	Radhekrishna Dubey	74
P-35	Study of damage profile of pure CeO2 upon irradiation with alpha particles, alpha recoils, and neutrons	Aman Singh	75
P-36	Cluster formation through the precise joining of iron oxide nanoparticles upon irradiation with low-energy nitrogen ions	Arpita Patro	76
P-37	Fabrication and Radiation response of TaOx based Resistive Random-access memory (RRAM) devices	R Sai Prassad	77
P-38	Evolution of nanoscale triangular features under oblique incidence ion beam sputtering	Sukriti Hans	78
P-39	Growth and characterization of La0.7Sr0.3MnO3 thin films on LaAlO3 substrate by pulsed laser deposition technique	Bharat Kumar Gupta	79
P-40	Annealing effect on the micro-structure, optical and electrical properties of Co and Ti co-doped Fe1.6Co0.2Ti0.2O3 system	Vimal Sahoo	80

P-37

Fabrication and Radiation response of TaO_x based Resistive Random access memory (RRAM) devices

R. Sai Prasad Goud[1,4], A. Mangababu[2], Arshiya Anjum[3], K. Ravi Kumar[2], Y. Rajesh[4], A. P. Gnana Prakash[3], A. P. Pathak[2] and S.V.S. Nageswara Rao[1,2,4,*]

[1]*Centre for Advanced Studies in Electronics Science and Technology (CASEST), University of Hyderabad, Hyderabad-500046, Telangana, India*
[2]*School of Physics, University of Hyderabad, Hyderabad-500046, Telangana, India*
[3]*Department of Studies in Physics, University of Mysore, Manasagangothri, Mysuru-57006, Karnataka, India*
[4]*Centre for Nanotechnology, University of Hyderabad, Hyderabad-500046, Telangana, India*
**Email:nageshphysics@gmail.com*

Memory has been a basic building block for information technology. Among various memory technologies, Resistive Random Access Memory (RRAM) is animportant element to replace the flash memory in future generation non-volatile memory applications. Recent studies have also proven its potential in harsh radiation environment of space. In this study, we present the effects of gamma irradiation on Tantalum oxide based RRAM devices. Indium tin oxide (ITO) coated glass was taken as bottom contact, on which Tantalum oxide (TaOx) was grown using e-beam evaporation technique at different substrate temperatures (300 ˚C and 500 ˚C) during deposition. The top contact silver (Ag) was deposited using Thermal evaporation method. Surface morphological and electrical characterizations were performed on Ag/TaOx/ITO RRAM devices. These devices were subjected to a wide range (100 Gy to 40 kGy) of doses of ^{60}Co Gamma irradiation. It was observed that the fabricated devices are sustainable even for heavy dose of 40 kGy. Defects created due to irradiation and their effects on switching properties of RRAM devices will be discussed in detail.