

Abstract Submitted
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Characteristic Behavior and Scaling Studies of Self Organized InP Nano-dots formed via keV and MeV irradiations DIPAK PARAMANIK, Institute of Physics, India, SHIKHA VARMA, Institute of Physics, India, SUBRATA MAJUMDAR COLLABORATION, SMRUTI R. SAHOO COLLABORATION — The controlled formation of nano-dots, using ion beams as tool, has become important as it offers a unique method to generate non-equilibrium phases with novel physical properties and structures with nano-dimensions. We have investigated the creation of self assembled nano- dots on InP(111) surfaces after 3 keV as well as 1.5 MeV ion beams at a large range of fluences. We have studied the Scaling exponents of the evolved surfaces by utilizing the technique of Scanning Probe Microscopy (SPM). At keV energies ripening of the nano-dots is seen below a critical time whereas an inverse ripening is observed for longer durations. At the critical time square shaped array of nano –dots are observed. The dots are characterized by narrow height and size distributions. Nano dots have also been observed at MeV ion irradiations. Their size distribution though broad at lowest fluence decreases for larger fluences.

Dipak Paramanik
Institute of Physics, India

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