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Using low energy ion beams to pattern the surface of novel semiconductors

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A wide range of ion energies (KeV- MeV), ion species, and ion fluences achievable by ion beam implantation, which allows fabrication of highly customized patterned subsurface structures in materials. This advanced material processing technology allows tuning of specific magnetic, and electronic properties with the aim of achieving a wide range of functionalities in electronics. Magnetic ions implantation has been actively used for functionalising semiconductor materials in recent few years in attempt to fabricate magnetic semiconductors for spintronic applications. [1, 2] Ion beam patterning, like electron-beam lithography, able to fabricate customised geometries on a surface of a semiconductor to create a functionalised region with desired electronic and magnetic properties. By using low energy ion beam implanter at Center of Accelerator Science (CAS) at Australian Nuclear Science and Technology Organisation (ANSTO), we demonstrate that the current method has the potential application in the integrated circuitry processing industry with the ability to “write” very small features down to few tens of nanometers.

Presenter Gender

Man

Do you wish to take part in the Student Poster Slam

Yes

Condition of submission

Yes

Students Only - Are you interested in AINSE student funding

Yes

Level of Expertise

Student

Pronouns

Which facility did you use for your research

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