

Neutron and X-ray absorption spectroscopy studies of cobalt ion beam implanted TiO₂ thin films

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Transition-metal-doped oxides offer a potential route towards magnetic semiconductors which would pave the way for spintronic applications. Although much of the research work has been conducted on Co-doped TiO₂, the room temperature magnetic properties of the system are still not well understood [1]. In this study, titanium dioxide (TiO₂) thin films were deposited on a silicon substrate and doped with Co ions using ion beam implantation at multiple beam energies to create a uniform dopant layer. Neutron reflectometry and X-ray absorption spectroscopy were conducted at ANSTO to study the magnetic and electronic properties of TiO₂ thin films.

References:

1. Cortie, D.L., et al., Enhanced Magnetization of Cobalt Defect Clusters Embedded in TiO₂- δ Films. ACS Applied Materials & Interfaces, 2017. 9(10): p. 8783-8795.

Speakers Gender

Male

Travel Funding

Yes

Level of Expertise

Student

Do you wish to take part in the poster slam

Yes

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