Compositional depth profile investigation of plasma doped Si/SiO_2:As by Medium-Energy Ion Scattering

I. Alencar,[1] G.G. Marmitt,[1] P.L. Grande,[1] J.G. England[2], A.K. Rossall[3], and J.A. van den Berg[3]

igor.alencar@ufrgs.br

[1]*Instituto de Física, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil*

[2]*Implant Division, Applied Materials, Horsham, UK*

[3]*International Institute for Accelerator Applications, University of Huddersfield, Huddersfield, UK*

In this work, the capability of Medium-Energy Ion Scattering (MEIS) [1,2] to describe nano-structured composites is illustrated. For this purpose, the plasma doping (PLAD) technique for implanting As into Si wafers with a native SiO_2 layer is investigated by MEIS after the samples had been submitted to wet cleaning and thermal treatment processes. Through the analyses of scattering by single and cluster ion beams with the same specific energy and charge state, the Coulomb explosion [3,4] allows the compositional determination as a function of depth by modelling the target structure with the PowerMEIS code [5]. The results are compared to independent measurements made by Transmission Electron Microscopy with Energy Dispersive x-ray Spectroscopy (TEM-EDS).

References

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