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Analysis of several Methods of Determining the Concentration of ^{11}B on Implanted Si Wafers used in the Semiconductor Industry. NELSON MARTINEZ, MATTHEW MCCLESKEY, Texas A&M University, College Station, TX, M.E. PERETICH, James Madison University, Harrisonburg, VA, G. DOWNING, National Insitute of Standards & Technology, Gaithersburg, MD, J.L. DUGGAN, FABIAN NAAB, University of North Texas, Denton, TX, B.N. GUO, Varian Semiconductor Equipment Associates, Gloucester, MA — Scaling of device dimensions is the key enabler for the economic manufacture of Large Scale Integration (ULSI) Chips in the semiconductor industry. Shallow implant boron is, and will continue to be, one of the most important component, to ULSI manufacturing. Implant energies of less than 1000 eV for boron concentrations in the range from 5 x 10^{14} - 5 x 10^{16} B/cm^2 are common. In this paper we have studied three "state of the art" techniques for analyzing the boron concentration on pure virgin silicon. These are: the ^{11}B(p,α)^{8}Be nuclear resonance reaction, the ^{11}B(^{3}He,p)^{12}C nuclear reaction, and the cold neutron beam at NIST for the ^{10}B(n,α)^{7}Li.

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