

Charged particle activation analysis of ultra trace levels of nitrogen in silicon at the Nishina Memorial Cyclotron Center, JRIA

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Abstract

CPAA of ultra trace amount of nitrogen in silicon has been tried at Nishina Memorial Cyclotron Center, JRIA. We adopted the $^{14}\text{N}(p, \gamma)^{11}\text{C}$ reaction for the activation of nitrogen. After being examined the behavior of ^{11}C in its chemical separation from the bombarded silicon, we improved the reliability and accuracy of charged particle activation analysis. In this work, the determination procedure of nitrogen of 10^{14} atoms/cm³ level in CZ silicon has been established. Our results showed the good agreement well with the results of CPAA of SHIEI and SIMS. The calculated values presented by a maker were almost lower than the analytical values.