

Lattice Sites of Cd in Ferroelectric BaTiO₃

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The radioactive isotope ^{111m}Cd was implanted into BaTiO₃ in order to measure electric field gradients (EFGs) with Perturbed Angular Correlation spectroscopy (PAC). It is possible to anneal the implantation induced lattice damage to a certain extent. Then, ^{111m}Cd probes are positioned at two sites with distinct axially symmetric EFGs characterized by the quadrupole coupling constants of 33.9(9) and 69.8(9) MHz. These EFGs can be assigned to ^{111m}Cd at the Ti- and the Ba-sites.

Key words: Quadrupole Interaction; Perturbed Angular Correlations; Perovskites;
Nuclear Probes.