

NMR Detection of Oxygen Isotopes in TiO₂ Single Crystal*

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Z. Naturforsch. **53a**, 305–308 (1998); received December 31, 1997

We studied the electric quadrupole interactions of Oxygen isotopes in a TiO₂ single crystal. For ¹³O and ¹⁹O nuclei, quadrupole coupling constants were measured by the β -NMR technique, and for the ¹⁷O nucleus the FT-NMR technique was utilized. We synthesized a TiO₂ single crystal which was enriched in ¹⁷O up to 5 atom % to observe NMR signals without any perturbations from impurities. Using the known quadrupole moment of ¹⁷O, EFGs at an O site in TiO₂ and the quadrupole moments of ¹³O and ¹⁹O were determined.

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