

Two and Three Dimensional Nuclear Quadrupole Resonance in the Investigation of Structure and Bonding

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A variety of two dimensional two- and three-dimensional NQR experiments are reviewed, showing their application to the determination of field gradients for important sites in peptides and proteins, for assigning connected transitions of nuclei with spin $\geq 5/2$, and for determining hexadecapolar coupling constants. The quadrupole coupling tensor for ^{63}Cu in the active site of a protein, bovine erythrocyte (Cu, Zn) superoxide dismutase, has been measured and is compared with the results of *ab initio* calculations.