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**Demagnetization field distribution in paramagnetic materials**

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A general method for the calculation of distribution of demagnetization field in paramagnetic materials is described, and the demagnetization field is calculated for samples with rectangular geometries. The results show high non-uniformity for the demagnetization field inside the sample depending on the sample aspect ratio and the direction of the externally applied magnetic field. Application is made to the modeling of the NMR spectra, providing good fit to the measured NMR spectra.

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