

Effectiveness of high magnetic fields in high-resolution solid-state NMR: II. Case of inorganic compounds

Solid-state NMR of half-integer spins, such as ^{11}B ($I=3/2$), ^{23}Na ($I=3/2$), and ^{27}Al ($I=5/2$), is getting important in inorganic material science. NMR signals of these nuclei may be broad due to quadrupolar interactions, leading to difficulties in spectral analysis.

Quadrupolar interactions, however, become smaller in inverse proportion to magnetic fields, resulting in sharp resonance lines and simple spectra.

Fig. 1 shows resolution enhancement along with magnetic fields: AlPO_4 exhibits three distinct peaks attributed to four-, five-, and six-coordinate aluminum in high magnetic fields.

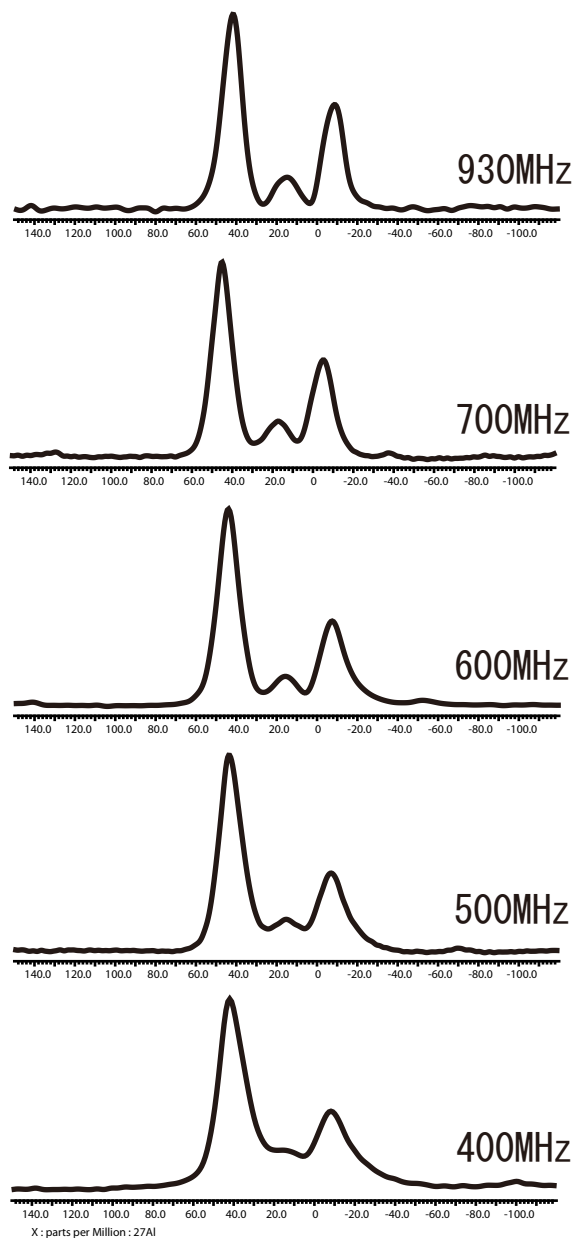


Fig. 1 Resolution enhancement along with magnetic fields

Sample: AlPO_4

Nuclei: ^{27}Al

Flip angle: 15 degree

Method: single pulse