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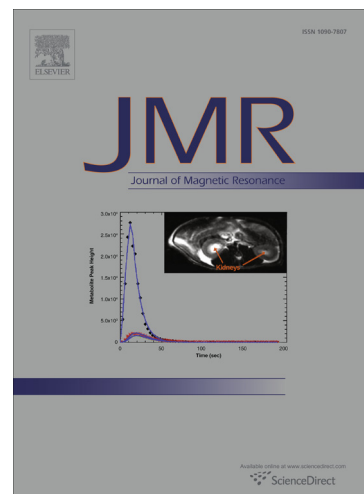
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Conditional rotations of heteronuclear coupled spins

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Abstract

We present a new pulse sequence that conditionally excites I spin magnetization only in the presence of a nonzero heteronuclear coupling to an S spin. The pulse sequence, referred to as the reverse INEPT pathway selective pulse or RIPSP, generates a pure I spin rotation by an angle that depends upon the heteronuclear coupling constant in I_nS spin systems. Experimental demonstrations are shown in ^{13}C labeled chloroform, dichloromethane, and toluene samples and in unlabeled 2,3-dibromopropionic acid and brucine samples.

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