

Abstract Submitted
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‘Radiation Damping’ in Gas Spin Comagnetometers.¹ ZHIGUO WANG, RUI ZHANG, Interdisciplinary Center of Quantum Information, National University of Defense Technology, HONG GUO, Peking University — We report a new kind of interaction between different species spins that appears when at least one species spin is precessing. The induced precession in the other species spin or spins will lead to damping and frequency-shift for the precessing spins. When one species spin is operating in a FID mode, its transverse relaxation time and oscillating frequency changes with time due to the influence of the other species spin. When one species spin is operating in self-oscillating mode, its transverse relaxation time and oscillating frequency will also be changed by the other species spin. These effects will influence the accuracy of NMR probes which are widely used in the search for CPT- and Lorentz-invariance violation, the fifth force, and so on. If this problem is solved or considered, the limit of the aforesaid search can be improved.

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