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| Title: | Theory of coherent averaging in magnetic resonance using effective Hamiltonians |
| Authors: | Garg, Rajat (/jspui/browse?type=author&value=Garg%2C+Rajat) Ramachandran, Ramesh (/jspui/browse?type=author&value=Ramachandran%2C+Ramesh) |
| Keywords: | Hamiltonians Coherent averaging Magnetic resonance |
| Issue Date: | 2020 |
| Publisher: | American Institute of Physics Inc. |
| Citation: | Journal of Chemical Physics, 153(3) |
| Abstract: | A perturbative approach based on multimode Floquet theory is proposed to explain the coherent averaging effects of radio frequency pulses on nuclear spins in magnetic resonance experiments. Employing effective Hamiltonians, a uniform description of the time evolution of spins under arbitrary multiple pulse schemes is presented. The choice of interaction frames and transformation functions desired for faster convergence of the perturbation series is identified based on the experimental conditions. We believe that the methodology outlined would be beneficial in the design and optimization of experiments beyond existing strategies. |
| URI: | https://aip.scitation.org/doi/10.1063/5.0012892 (https://aip.scitation.org/doi/10.1063/5.0012892) http://hdl.handle.net/123456789/3219 (http://hdl.handle.net/123456789/3219) |
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