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Looped-PROjected SpectroscopY (L-PROSY) applied to ^{15}N - ^1H HMQC-NOESY experiment

Mihajlo Novakovic, Samuel F. Cousin, Michael J. Jaroszewicz, Rina Rosenzweig,
Lucio Frydman

Department of Chemical and Biological Physics, Weizmann Institute of Science,
Rehovot 7610001 Israel

e-mail: lucio.frydman@weizmann.ac.il

Section: liquids

Abstract: Relatively low sensitivity is one of NOESY's well known drawbacks, as off-diagonal cross-peaks carrying structurally relevant information involve a small fraction of the total magnetization. This experiment explores a simple approach, **looped PROJECTed SpectroscopY**, capable of enhancing amide/aliphatic NOE-derived cross-peaks in proteins. L-PROSY is based on repeating the perturbation done by NOE's Ramsey measurement, multiple times. Parameters such as correlation times and amide-water chemical exchange rate will dictate L-PROSY's overall SNR improvements; these parametric dependencies were examined, and enhancements $\approx 2\text{-}5\text{x}$ are expected for typical macromolecules. This idea is exploited in the enclosed L-PROSY ^{15}N - ^1H HMQC-NOESY sequence.

Reference: M. Novakovic, S. F. Cousin, M. J. Jaroszewicz, R. Rosenzweig and L. Frydman, *J. Magn. Reson.*, 2018, **294**, 169–180.

Keywords: NOESY, Sensitivity enhancement, Looped projective measurements, Structure elucidation

Contents: pulse program, parameter files, additional files (cpd, gradient shapes, shaped pulses, vd, example plots, sparky files, a sample dataset, processing routines and README file.

Compatibility: Avance III, TS2, prosol, WaveMaker.

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