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**How Fissors works: tracking vibrationally adiabatic conformational change with femtosecond stimulated Raman spectroscopy**[1] JEFFREY CINA, PHIL KOVAC, Univ of Oregon, DEPARTMENT OF CHEMISTRY & OREGON CENTER FOR OPTICS TEAM — With the help of a two-dimensional model system comprising a slow conformational degree of freedom and a higher-frequency vibration, we investigate the optical generation and dynamical information content of femtosecond stimulated Raman spectroscopy (FSRS or fissors). Our treatment makes use of an assumption that the motion of a wave packet describing the relatively slow—but still ultrafast—conformational change is vibrationally adiabatic. We present calculated fissors signals for regimes in which the conformational change is or is not sufficiently slow to result in an evolving fissors lineshape whose center frequency tracks the "instantaneous" vibrational frequency.

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