

Towards molecular computing.
- New directions in laser chemistry -

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It has been said that the next new development in computer science may be molecular computers, based on ultrafast molecular switching on a fs time scale („frozen nuclei“) and in a nanoscopic regime, making use of the two-dimensional vibrational spectroscopy of even small molecules.

A necessary ingredient of the operation is pulse shaping to optimize switching and to control switching (cross-coupling) that would otherwise not occur. The concept will benefit from strong-field excitation. Ladder climbing among vibrational modes is important and will be experimentally demonstrated for carbonyl compounds.

A small attempt will also be made to connect to existing technology.