

attention jour et horaire inhabituel

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Ecole Polytechnique
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Chemical applications of two-dimensional infrared spectroscopy

From the perspective of nonlinear optics, the physical basis for ultrafast multidimensional spectroscopy was already established two decades ago at the time of the first experimental demonstrations. Unlike the case of electronic 2D spectroscopy, where there are ready-made phenomena such as photochemistry and photo-physics, it was not immediately clear how the new information made available by 2D-IR spectroscopy would be useful to answer the real chemical questions that interest the broader community. Although most research that uses 2D-IR is still narrowly focused within specialist niches of physical chemistry and biophysics, we are hopeful, and reasonably confident, that the third decade of multidimensional optical spectroscopy will see these powerful tools applied to pressing chemical challenges in a wide range of contexts. This talk will provide a conceptual introduction to the methods and the lessons we have learned about how to use 2D-IR to provide new chemical insight in varied settings, ranging from photocatalysis to biomolecule hydration.