

## HIGH RESOLUTION COHERENT MULTIDIMENSIONAL SPECTROSCOPY FOR OVERCOMING SEVERE SPECTRAL CONGESTION

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High resolution coherent 2D and 3D spectroscopies are unusually powerful tools for overcoming problems of spectral congestion because they can 1) automatically sort peaks by rotational and vibrational quantum number, 2) spread out peaks into higher dimensions in order to improve resolution, and 3) limit the number of possible peaks that are produced at higher dimensions through the use of parametric and nonparametric four wave mixing processes. This talk will describe new multidimensional pattern recognition techniques that can be used with high resolution coherent multidimensional spectroscopy.