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The implementation and the use of the ultra-fast (UF) 2D NMR

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Two-dimensional nuclear magnetic resonance spectroscopy is commonly applied in the field of chemistry and structural biology. The conventional 2D NMR acquisition scheme is limited due to the fact that it requires multiple scans with a number of time delay increments. The Ultra-Fast (UF) NMR approach proposed a few years ago, which allows fast acquisition of 2D NMR in a single scan. UF 2D NMR is rapidly becoming a powerful analytical tool in an expanded field of applications. This paper summarizes the principles and researches that have contributed to the success of this approach and focuses on applications that

have the demonstration in various areas of analytical chemistry and biochemistry: monitoring fast organic reactions, dynamic study of the biomolecular process, as well as quantifying and evaluating the mixture of the solution. Despite all the potential UF 2D NMR has, the implementation of this NMR is not as popular in the research field as yet. It is not only because of its sensitivity, resolution and flexibility problems but due to its requirement of specific acquisition, processing procedures and parameters such as gradient amplitudes and chirp pulse.

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