Special Issue

Comprehensive and Off-Line Two-Dimensional Liquid Chromatography (2D LC) Separations

Message from the Guest Editor

In a multidimensional LC offline setup, the columns are independent of each other, whereas in online arrangements, two or more columns are directly coupled using serial, heartcut, stop-and-go, or comprehensive setups. “Comprehensive” online 2D LCxLC chromatography coupling two different separation mechanisms has become a standard technique, which can provide theoretical peak capacities of up to 1500 in about 30–120 min. Remarkable advances were achieved in the development and optimization of column technology and with coupling various LC modes to provide an increasing number of useful 2D LC applications. In addition to the main application field in the analysis of proteins and other biopolymers, comprehensive 2D LC can separate hundreds of compounds in clinical, food, natural product, and environmental samples, in the characterization of biopolymers and synthetic polymers, and in many other fields. In addition to a major increase in peak capacity, multidimensional LC separations may provide group separations of various samples based on molecular structure similarities and differences, which is useful for sample structural analysis and identification.

Guest Editor

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Deadline for manuscript submissions

closed (28 February 2022)

Separations

an Open Access Journal by MDPI

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CiteScore 4.5

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