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Amphiphilic Molecules, Interfaces and Colloids

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Colloids such as emulsions, foams, sols, and gels play an integral role in living organisms, the natural environment, resource extraction, pharmaceuticals, cleaning products, processing industries, and, basically, in almost all aspects of our everyday life. To a large extent, colloid stability and functionality are determined by the properties of interfaces between dispersed and continuous phases, and by the surface forces acting at the micro- and nanoscale levels. It is amphiphilic molecules that are capable of altering colloidal system properties, thus changing the overall system behavior. This is why a comprehensive understanding of amphiphile molecular structure and the respective interactions taking place at the interfaces ensures an effective control over colloidal system properties. The contributions included in this Reprint highlight the relation between amphiphile molecular structure, self-assembly in solutions, molecular arrangements at interfaces, specific interactions at the micro- and nanoscales, and the properties displayed by the colloidal systems. The included research spans from fundamental studies on the physicochemical behavior of colloidal systems to the design of innovative solutions for practical applications.

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