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Editorial: 2022 Retrospective: colloidal materials and interfaces

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Editorial on the Research Topic
2022 Retrospective: colloidal materials and interfaces

Colloidal materials and interfaces, with their profound impact on a myriad of applications, have witnessed an unprecedented surge in research activities. The amalgamation of diverse research endeavors has illuminated the multifaceted nature of colloidal materials and interfaces, showcasing their pivotal role across various disciplines (Wu et al., 2020; Liu et al., 2021; Kim et al., 2023). Here the Research Topic "*2022 Retrospective: Colloidal Materials and Interfaces*" has unveiled the forefront of scientific inquiry and innovation within the dynamic realm of colloidal science. One of the key strengths of this Research Topic lies in its ability to display the extensive diversity of research undertaken across the section.

The Research Topic embarked on a journey through five distinct papers, demonstrating a wide range of applications, from enhanced drug delivery systems and innovative ophthalmic formulations to the profound implications of mineral surface charge in reservoir rock dynamics. Five subjects are included: (1) emerging the synthesis of NiO-ZnO and NiO-CuO nanocomposites as a promising avenue for photocatalytic degradation of pollutants, which opens avenues for sustainable solutions in environmental remediation, aligning with the ever-growing importance of eco-friendly technologies (Weldekirstos et al.); (2) exploring the potential of oxybutynin-nanoemulgel for enhanced skin permeation, laying the foundation for future innovations in topical drug administration, fostering possibilities for enhanced patient compliance and therapeutic efficacy (Mohammadi-Samani et al.); (3) delving into the intricate world of reservoir rock dynamics, emphasizing the role of mineral surface charge in wettability alteration, contributing to the efficiency of hydrocarbon extraction, and underscoring the significance of interdisciplinary approaches in solving real-world challenges (Mohammed et al.); (4) comprehensively reviewing the unfolded the unique properties of nanocellulose from a colloidal material perspective, navigating through the colloidal intricacies of nanocellulose, shedding light on its unique properties that render it a material of choice in diverse applications (Sanchez-Salvador et al.); (5) presenting a breakthrough in ophthalmic drug delivery with the formulation and evaluation of microemulsions for enhanced topical administration of brinzolamide

(Zafar et al.). These contributions collectively underline the interdisciplinary nature of colloidal science, where researchers seamlessly integrate principles from chemistry, physics, biology, and engineering to unravel the complexities of colloidal materials and interfaces.

As we close this Research Topic, we extend our heartfelt appreciation to the authors, whose meticulous research has enriched our understanding of colloidal science. Additionally, we express gratitude to the reviewers for their invaluable contributions in ensuring the quality and rigor of the presented work. This Research Topic stands not only as a reflection on the past but also as a beacon guiding future exploration. The insights gained from these contributions will undoubtedly serve as a foundation for future breakthroughs, inspiring researchers to dig deeper into the details of colloidal materials and interfaces.

We look forward to the continued evolution of colloid materials and interfaces, anticipating the next wave of discoveries that will shape our understanding of materials at the molecular and nanoscale levels. As we bid farewell to this Research Topic, we do so with a sense of anticipation, knowing that the journey of exploration and discovery is far from over.

Author contributions

ZG: Writing–original draft, Writing–review and editing.

Conflict of interest

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