



Modeling of Interfaces and Surface Microfluidics

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Message from the Guest Editor

Microfluidic devices can be used in many applications, such as biomedical or biological analysis or during water cleaning and purification. As the related experiments are not easy to perform at the microscale and they are relatively complex, modeling and simulation are important in the facilitation and acceleration of microfluidic device designs, such as MEMS. Surfaces play an important role at the microscale as they can affect flows. A considerable amount of research has been carried out regarding surface modification in microfluidic designs, as it can affect the flowrate through slip based on a surface's hydrophobicity/hydrophilicity or assist with ion separation in other cases. Functionalization is another important area of research. Several methods are employed in modeling, such as molecular dynamics and dissipative particle dynamics, to name a couple.

- The multiscale modeling of surfaces and interfaces in microfluidics;
- Complex hydrophilic and hydrophobic surfaces;
- Applications of modeling in biological fluid devices;
- Applications in desalination and water purification using microfluidic devices;
- Membranes made from micropores.





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