



Contribution ID: 421

Type: **Poster (+) Presentation**

Filtration with multiple species of particles

Wednesday, 2 June 2021 10:00 (1 hour)

Membrane filtration with a feed containing multiple species of particles is common in the industrial setting and many experimental results are available; however, little theoretical work in terms of first-principles mathematical modeling has been reported. We propose a simplified model for filtration of a suspension containing an arbitrary number of particle species, each with different affinities for the filter membrane. We use our model to formulate and solve selected optimization problems for the filtration of a feed solution containing two particle species, where one is to be removed by the filter and the other retained in the filtrate. In addition, we investigate the screening (shielding) effect, which is thought to contribute to the particle retention deterioration observed in experiments over the lifetime of a filter.

Time Block Preference

Time Block A (09:00-12:00 CET)

References

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Student Poster Award

Primary authors: Mr SUN, Yixuan (NJIT); Prof. KONDIC, Lou (New Jersey Institute of Technology); Prof. CUMMINGS, Linda (New Jersey Institute of Technology)

Presenter: Mr SUN, Yixuan (NJIT)

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