Kémiai Szakbizottság
Elnök: Juhászné Csapó Edit
Fizikai-Kémiai és
Anyagtudományi Munkabizottság
Elnök: Sápi András
Titkár: Janovák László

Meghívó

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Helyszín: A Szegedi Akadémiai Bizottság székháza, Szeged, Somogyi u. 7.
217. terem

Dr. Marko Pavlovic

RevivBio Inc. and Harvard University, Boston

"Microfluidics as a Unifying Platform: From High-Sensitivity Sensing to Nanoparticle Synthesis and Directed Protein Evolution"

című előadására

(Az előadás angol nyelvű összefoglalója alább található)

Minden érdeklődőt szeretettel várunk!

Microfluidics as a Unifying Platform: From High-Sensitivity Sensing to Nanoparticle Synthesis and Directed Protein Evolution

Marko Pavlovic PhD
Head of Microfluidcs, RevivBio Inc, Boston, MA, USA
Associate at Harvard University, Boston, MA, USA

Microfluidic technologies have emerged as a powerful paradigm for controlling chemical and biological processes with unprecedented precision across spatial and temporal scales. Here, an integrated perspective connecting three distinct yet conceptually unified applications of microfluidic engineering is presented.

I first demonstrate droplet-based microfluidic systems for high-sensitivity analyte detection, where droplets are used as signal transducers based on changes in interfacial tension. Building on the principle of controlled fluidic architecture, chaotic micromixer designs for continuous-flow nanoparticle synthesis is next described, wherein tunable flow parameters govern nucleation and growth kinetics to yield particles of defined size with markedly improved monodispersity relative to conventional batch methods. Finally, I extend these compartmentalization and throughput advantages to directed protein evolution, where microfluidic platforms enable high-throughput phenotypic screening and selection of functional variants at throughputs exceeding 10^7 events per day.

Across these domains, a common theme emerges: microfluidics transforms stochastic bulk processes into deterministic, scalable workflows. As a result, microfluidic systems hold strong promise for accelerating discovery across chemistry, materials science, and biotechnology.