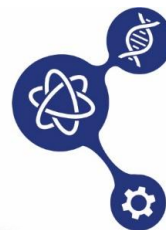


Seminario de Química Física



Lunes 26 de Octubre de 2026 – 10:30 h



Sala de Tesis (Antigua Capilla)

Prof. Yan Xu

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Osaka Metropolitan University, Japan*



Pioneering Nanofluidics for New Molecular Chemistry: From Single-Molecule Manipulation to Single-Molecule Reaction Dynamics in Solution

Nanofluidics provides a unique platform for manipulating molecules and regulating chemical processes in confined solution environments. Through our “Nano-in-Nano Integration” strategy, which incorporates fluidic, optical, electrical, thermal, and chemical functionalities into nanoscale channels, we have developed approaches for molecular transport, attoliter-scale reaction control, and single-molecule manipulation. These advances are now enabling us to move beyond observation toward single-molecule regulated chemistry (SMRC)—a new paradigm we have proposed in which individual molecules can be isolated, transported, brought into contact, and reacted with precise control in solution. In this seminar, I will highlight our recent progress toward this goal and discuss how nanofluidic manipulation can be integrated with time-resolved and ultrafast spectroscopic approaches to explore single-molecule reaction dynamics in solution, opening new directions in molecular dynamics of chemical reactions..

