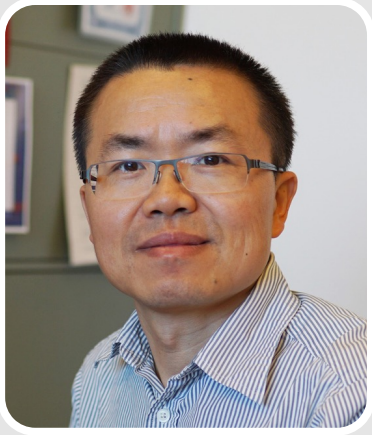
UCMERCED | CHEMISTRY & BIOCHEMISTRY

DATE 03/13/2026 | TIME 01:30pm | LOCATION SSB 170

CHEMISTRY & BIOCHEMISTRY SEMINAR SERIES:
Magnetic Assembly Approaches to Creating Smart Materials

Abstract:

Smart materials hold great promise for many intriguing applications as they exhibit chemical and physical responses to the applied external stimuli. This presentation summarizes our effort in developing magnetic assembly approaches to creating smart optical materials that can find applications in printing, sensing, signage, security documents, and displays. We will first review our early success in the chemical synthesis of magnetic nanostructures and their assembly into periodic structures with dynamic responses to external magnetic fields. By controlling the interaction between light and the nanostructured assemblies, we then show that many novel optical materials could be developed by manipulating diffraction, refraction, birefringence, electronic resonances, and chiroptical properties. In particular, we will discuss our recent progress in creating magnetic/plasmonic hybrid nanostructures and in assembling them into smart materials with dynamically tunable optical and mechanical properties by controlling the spatial arrangement of these nanoscale building blocks via magnetic means.



Yadong Yin

Professor
Department of Chemistry
University of California, Riverside

About the Speaker:

Prof. Yin received his Ph.D. from the University of Washington in Seattle in 2002 under the supervision of Prof. Younan Xia. He became a postdoctoral fellow at the University of California, Berkeley, in 2003, working under the supervision of Prof. A. Paul Alivisatos. He then became a staff scientist at Lawrence Berkeley National Laboratory in 2005. He joined the Department of Chemistry, University of California, Riverside, in 2006 and became a Full Professor in 2014. He received some recognition, including the Cottrell Scholar Award (2009), DuPont Young Professor Grant (2010), 3M Nontenured Faculty Grant (2010), NSF CAREER award (2010), MRS Fellow (2020), and Langmuir Lectureship Award (2022). Being named as one of the world's highly cited researchers by Clarivate Analytics from 2014 to 2025, he served as an Associate Editor of J. Mater. Chem. C (RSC) and Responsive Mater. (Wiley), and a Deputy Editor of Research (CAST & AAAS), and was recently appointed as the Deputy Editor of ACS Nanosci. Au. He also serves on the editorial boards of many journals, such as Adv. Funct. Mater., Sci. China Mater., Nano Lett., and Chem. Rev.

For more info, contact: Jennifer Lee, jenniferlee@ucmerced.edu