Jessica Winter

Professor of Biomedical, Chemical and Biomolecular Engineering | College of Engineering at The Ohio State University

Columbus, OH, US

Biomedical expert, revolutionizing our knowledge of the relationship between nanoparticles and biology

Biography

Dr. Jessica Winter is a Professor in the William G. Lowrie Department of Chemical and Biomolecular Engineering and the Department of Biomedical Engineering and Associate Director of the MRSEC Center for Emergent Materials at the Ohio State University. She received her PhD in Chemical Engineering from the University of Texas at Austin and completed a postdoctoral fellowship at the Center for Innovative Visual Rehabilitation. Dr. Winter joined the faculty at Ohio State University in 2006, where her research has centered on two themes: nanoparticle synthesis and assembly and neural biomimetic materials. In the area of nanoparticle synthesis and assembly, Winter?s work has focused primarily on quantum dots and magnetic quantum dots that have applications in multimodal imaging, cell and molecular separations, and molecular diagnostics. She and her collaborators have developed a scalable nanomanufacturing process for nanoparticle synthesis that combines top-down and bottom-up assembly processes. In the area of biomimetic materials, Dr. Winter?s research group is developing materials that mimic white matter and extracellular matrix in brain to elucidate the roles of these materials as cancer cell migration highways. In this context, she is examining the effects of pressure and microenvironment on resistance to therapy. This work culminated in the formation of a company, Core Quantum Technologies, to commercialize these materials for clinical diagnostics. Her work with CQT has received several accolades, including two local newspaper articles, the University Early Innovator Award, the TechColumbus Innovator of the Year Award, and was named Engineering Rising Star by Design Engineering News Golden Mousetrap awards. She was named one of the ?20 people to know in technology? in the state of Ohio, gave a TedX Talk on her experiences, and was the cover story of the Winter 2016 issue of Cancer Today, a publication of the American Association of Cancer Researchers. Dr. Winter has also served as member-at-large, vice chair, chair, and is currently past-chair of the Nanoscale Science and Engineering Forum of the American Institute of Chemical Engineers. She is a fellow of the AAAS and AIMBE, a senior member of the IEEE and AIChE. She has been recognized by several awards and has presented her research to congress on behalf of the NSF.

Industry Expertise

Research, Education/Learning, Biotechnology, Nanotechnology

Areas of Expertise

Cancer diagnostics, Brain, Bionanotechnology, nanopatterned surfaces using biological elements, Nanoscale neural prosthetic devices, Biomedical Engineering, Biomolecular Engineering, Nanotechnology, Neural Engineering

Education

University of Texas at Austin
Ph.D. Chemical Engineering

University of Texas at Austin
M.S. Chemical Engineering

Northwestern University
B.S. Chemical Engineering
