

Friday, April 22, 2016, 1:00 – 2:00 pm
UPC – Hedco Neuroscience Building, Room 100
Lunch and refreshments will be available at 12:30 pm

Physical Phenotyping

Prof. Dino Di Carlo

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Bioengineering Department
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<http://www.biomicrofluidics.com>



My lab uses microtechnology to interface at the scale of biology to aid in scientific investigation, develop new approaches to diagnose and monitor disease, and engineer therapies. A part of our laboratory develops tools to assay and exploit physical properties of cells in diagnostics and drug screening. Physical properties of cells can provide integrative, rapid, and low-cost information about disease. My discussion will focus on instruments we have developed that quantify single-cell physical phenotypes such as deformability and size. I believe these new tools will enable new diagnostic and screening approaches that assay immune cell function at the point-of-care, tumor cell malignancy with higher confidence than molecular markers alone, and many other cell fate decisions associated with disease.

Biography

Dino Di Carlo is a Professor in the Department of Bioengineering at UCLA. Over the last 8 years he pioneered using inertial fluid dynamic effects for the control, separation, and analysis of cells in microfluidic devices. His work now extends into numerous fields of biomedicine and biotechnology including directed cellular evolution, cell analysis for rapid diagnostics, new amplified molecular assays, next generation biomaterials, and phenotypic drug screening. He also serves as Director of the Cancer Nanotechnology Program of the Jonsson Comprehensive Cancer Center at UCLA and holds a visiting Professorship at the University of Tokyo. He co-founded and currently advises four companies that are commercializing intellectual property developed in his lab over the last six years (CytoVale, Vortex Biosciences, Tempo Therapeutics, and Ferrologix). He has received numerous honors and awards including the Presidential Early Career Award for Scientists and Engineers (PECASE) and the Materials Research Society (MRS) Outstanding Young Investigator Award in 2016, the Pioneers of Miniaturization Prize in 2015, Analytical Chemistry Young Innovator Award in 2014, the National Science Foundation (NSF) CAREER award, the U.S. Office of Naval Research (ONR) Young Investigator Award, the Packard Fellowship, the Defense Advanced Research Projects Agency (DARPA) Young Faculty Award, the National Institutes of Health (NIH) Director's New Innovator Award and the Coulter Translational Research Award. He is an elected Fellow of the American Institute for Medical and Biological Engineering (AIMBE) and the Royal Society of Chemistry.