Department of Physics
Clarkson University
Seminar

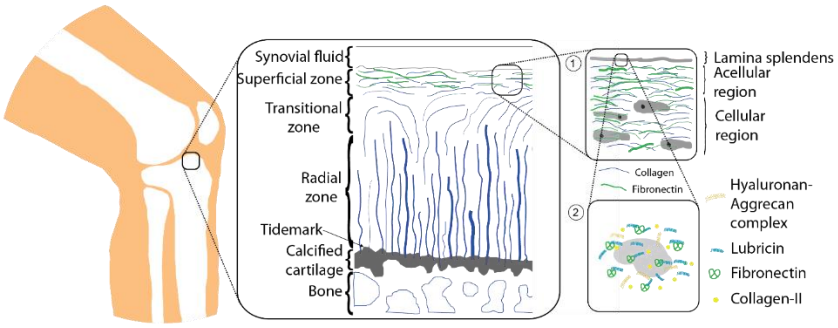
Dr. Roberto C. Andresen Eguiluz

University of California, Merced

will speak on

Nanomechanics of synovial fluid films

The primary role of articular cartilage (AC) is to provide a smooth lubricated surface between contacting and moving bones, which allows for ultralow friction as well as wear protection to the sliding epiphysis for almost a century in healthy people. The physical and chemical nature of the topmost surface of AC has intrigued researchers since it was first reported in 1951, called the "lamina splendens". This layer has been the source of heated and controversial scientific debate since it was first reported. The lamina splendens is important because it forms the interfaces between the cartilage and synovial fluid, the natural lubricant of synovial joints. Its critical location in the joint implicates it in the lubrication, wear protection, and load distribution of the articular cartilage. Despite decades of research, precise knowledge of the structure and mechanics of the cartilage surface remains elusive. In this talk, I will discuss molecular interactions of synovial fluid and various of its components (e.g., lubricin, hyaluronan, serum albumin) with model surfaces, to reveal physical and chemical properties of the lamina splendens.



Bio: Dr. Roberto C. Andresen Eguiluz has been an Assistant Professor in the Department of Materials Science and Engineering at the University of California Merced since July 2019. He has a degree in Mechanical Engineering from the National Autonomous University of Mexico (UNAM), a Ph.D. in Materials Science and Engineering from Cornell University, and had postdoctoral appointments at the University of Illinois at Urbana-Champaign and the University of California, Santa Barbara. His research interests center on understanding mechanical forces at biological interfaces across several length scales (molecular to small tissue scales).

Friday, March 25, 2022
3:30 PM

Zoom
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