

## NANO-BME Seminar

**Time: 10:00AM Tuesday, April 19**

**Location: EP208 and <https://sdsmt.zoom.us/j/94046899625>**

### Leveraging Advanced Imaging and Quantitative Analysis to Understand Cellular Biochemistry

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**Abstract:** Recent advances in fluorescence imaging have enabled visualizing the functions of living cells with unprecedented spatial and temporal resolution. As a result, long-standing and fundamental biological questions are beginning to yield through this new generation of tools. My research interests sit at the intersection of developing new imaging technology, biosensors, and computational approaches. I will discuss a polarization-based method to quantify nanoscale membrane bending and how this was applied to better understand the fundamental process of clathrin-mediated endocytosis. Additionally, I will discuss current efforts to understand how immune cells respond to external stimuli and regulate their shape locally to internalize fluid or target cells, and the development of new methods to visualize and share multidimensional data in an interactive manner. Finally, I will describe future directions that involve the development of new probes to quantify the physical forces exerted during intercellular contact and its role in altering cellular signaling fates.

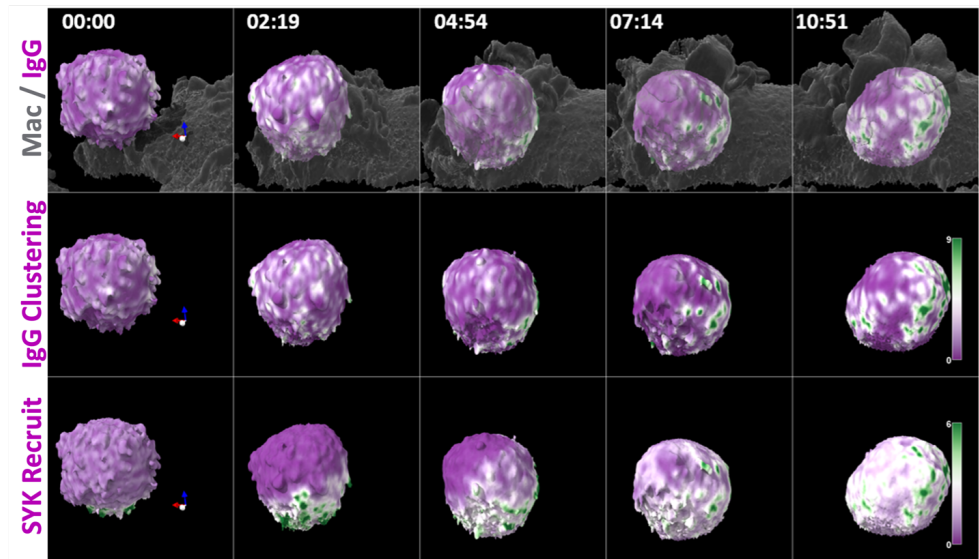


Figure 1. Phagocytosis of IgG-coated target cell. **Top-Mid.** Surface proximal IgG signal projection highlighting the rearrangement during internalization. **Bottom:** Target-associated intensity projection of a fluorescent protein fusion showing the recruitment of the essential kinase for phagocytosis.

**About the speaker:** Dr. Scott obtained his Ph.D. in Biochemistry from South Dakota State University and continued there as a postdoc until joining SD Mines in 2018. He was promoted to Research Assistant Professor in 2019 when he became South Dakota's only Chan-Zuckerberg Imaging Scientist. He is an expert in biochemistry, cell biology and live cell volumetric imaging.

