

ICB seminar series 2017/18

chairman: Prof. Dr. Andrew deMello

IMAGING AND SEQUENCING SINGLE CELLS

Prof. Dr. Aaron M. StreetsAssistant Professor of Bioengineering
University of California, Berkeley**ETH Hönggerberg,
Thursday, 19/07/2018
HCI J 4, 15.00 h**

Abstract: Quantitative cellular imaging with coherent Raman microscopy reveals morphological characteristics and chemical composition at the single-cell level. Meanwhile recent advances in high-throughput sequencing have enabled whole-transcriptome profiling of gene expression in single cells. Both measurements can uncover heterogeneity in cellular populations that would otherwise be obscured in ensemble measurement. Furthermore both imaging and gene expression profiling can be used to quantify cell state during differentiation. However, in order to infer the relationship between gene expression and morphological phenotypes, it is necessary to image and sequence the same single cell. We use a microfluidic platform to couple imaging and RNA sequencing of single cells and present recent developments on how to analyze large, multimodal, single-cell datasets.

Bio: Aaron completed his Bachelor's at UCLA in Physics and his PhD at Stanford in Applied Physics with Dr. Stephen Quake. He then went to Beijing, China as a Whitaker International Postdoctoral Fellow and worked with Dr. Yanyi Huang in the Biodynamic Optical Imaging Center (BIOPIIC) at Peking University. Aaron joined the faculty of UC Berkeley as an Assistant Professor in Bioengineering in 2016 and is currently a core member of the Biophysics Program and the Center for Computational Biology. He is also a Chan Zuckerberg Biohub investigator.