Universität Bern
Institut für Angewandte Physik
Sidlerstrasse 5
3012 Bern, Schweiz

Telefon: +41 (0)31 631 89 11
E-Mail: iapemail.iap@unibe.ch
www.iap.unibe.ch

UNIVERSITÄT BERN

Seminar über Biomedizinische Photonik

Speaker: Dr. Yuqi Tan, Stanford University

Title: From Pixels to Actions: AI-Driven Approaches for Spatial Biology

Time: Monday 18.05.2026, 17h00

Place: Room 304, Hauptgebäude, Hochschulstrasse 4, 3012 Bern

Abstract:
Advances in spatial and multiplexed imaging technologies are revealing the intricate organization of human tissues at single-cell and molecular resolution. However, transforming these rich datasets into biological and clinical insight requires new computational paradigms. In this talk, I will present how modern AI and machine learning methods, ranging from classical machine learning models to generative AI, are redefining the analysis of 2D and 3D spatial omics data. More importantly, I will illustrate how these approaches enable functional cell type discovery, cancer subgroup identification, and in silico spatial experimental design, translating data into actions for precision medicine

Bio:
Dr. Yuqi Tan, Instructor (Microbiology & Immunology, a non-tenured faculty track) at Stanford University, holds a BSc in Cell and Molecular Biology from the Chinese University of Hong Kong and a PhD in Computational Biology from Johns Hopkins University. With a record of more than 20 scholarships and awards, she specializes in crafting computational tools that integrate and transfer knowledge across various single-cell data modalities, whether in two or three dimensions. Her expertise finds practical applications in determining cell type identities and elucidating the spatial orchestration of cell types, especially within the domains of stem cell engineering, cancer immunotherapy, cancer initiation, and psychiatric diseases.