

### **University of Stuttgart**

Stuttgart Research Center Systems Biology (SRCSB)

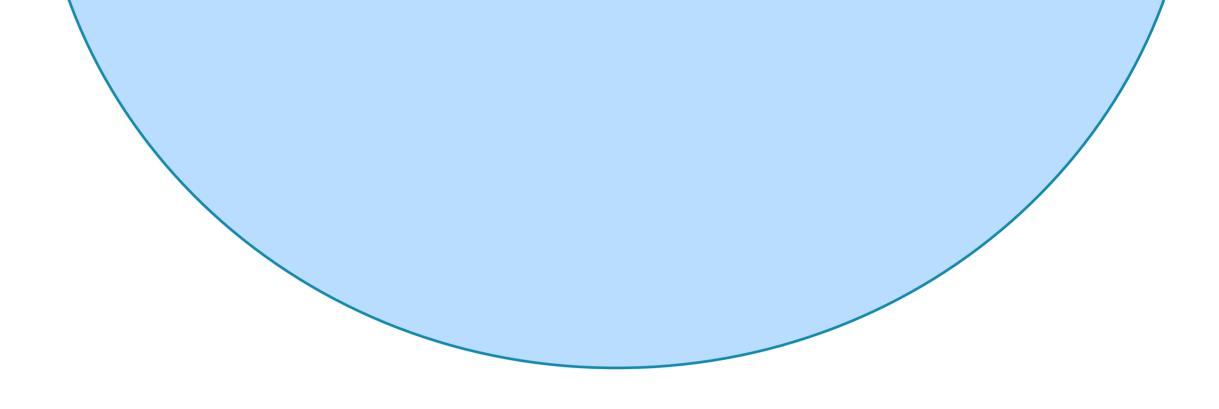
# Systems Biology Seminar Talk



"Uncovering Receptor Oligomerization States in CD95 Signaling with Super-Resolution and Multiparametric Image Spectroscopy"

> Prof. Dr. Cornelia Monzel Experimental Medical Physics, Heinrich-Heine University Düsseldorf





#### **Abstract**:

CD95 oligomerization state can decide a cell's fate. CD95 (Cluster of Differentiation 95) is a membrane receptor initiating the signaling cascade for controlled cell death (apoptosis) after ligand-induced activation. Some types of cancer show a deregulation of this CD95 apoptosis mechanism leading to proliferation rather than cell death1. As the switch from signaling for death to life is hypothesized to occur via different CD95 activity states, we here investigate mechanism of molecular oligomerization of CD95 on the cell membrane.

Multiparametric imaging approach. Measuring the structural state of proteins at the single-molecule level remains challenging, in particular when molecular oligomerization states are to be distinguished2. For this reason, we use a multiparametric spectroscopic approach to provide quantitative insights. Timeresolved FRET live-cell experiments are used to measure the supramolecular state of CD95. As an orthogonal measure, superresolved STED images and FCS measurements reveal the supramolecular size and diffusion characteristics, respectively. Recently, we are moving to the single molecule level and develop EGFP-bleaching step analyses using a confocal setup. We report on the CD95 oligomerization states as well as on novel experimental/analytical methodologies.



## **Thursday June 22, 2023** *4 p.m. – 5 p.m.*

#### <u>CV:</u>

since 2019 Prof: Heinrich-Heine University, Düsseldorf 2018-19 Jun.-Prof and Freigeist-Fellow of VolkswagenFoundation: Heinrich-Heine University, Düsseldorf 2015-17 2nd Postdoc: Institut Curie, Paris, France (with Maxime Dahan)

## Lecture Hall 0.106 Allmandring 31 Stuttgart

2012-15 1st Postdoc: University of Heidelberg (with Motomu Tanaka)
2009-12 French-German PhD: Research Centre Jülich & Université
Aix-Marseille II, France (with Rudi Merkel and Kheya Sengupta)
2009 Physics Diplom: University of Bonn
2006 M.Sc. Studies in Physics: University of Cambridge, UK

