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# INM COLLOQUIUM

## "LOOKING AT PROTEINS IN LIVE CELLS WITH ATOMIC RESOLUTION: FROM SCIENCE FICTION TO SCIENCE REALITY"

Prof. Dr. Phil Selenko
Weizmann Institute of Science, Rehovot, ISR

Tuesday, April 30, 2019, **2:15 pm**

INM, Leibniz-Saal, Campus D2 5
Host: Prof. Dr. Niels de Jonge

Recent breakthroughs in optical and electron microscopy have changed the fields of Cellular and Structural Biology in a most profound manner. Ever more detailed information about the inner workings of cells is becoming available, revealing stunning new insights into molecular landscapes and their biological activities, at unprecedented levels of resolution. Besides these advancements in imaging modalities, complementary *in situ* methods are beginning to emerge as powerful tools in modern Cellular Structural Biology approaches. Here, I discuss how recent developments in in-cell NMR, EPR and single-molecule FRET spectroscopy contribute to our understanding of basic biological processes in live cells. Specifically, I outline how these techniques provide time-resolved atomic-resolution information about intracellular protein structures and functions, which cannot be obtained with any other method at this time.

## SHORT BIO

Phil studied Chemistry and Biochemistry at the University of Vienna. He completed his PhD in biomolecular NMR spectroscopy at the EMBL in Heidelberg (with Michael Sattler) before joining Gerhard Wagner's lab at Harvard Medical School for his PostDoc (2003-2008). There, he started using NMR spectroscopy for studying proteins directly in live cells at atomic resolution. At Harvard, developed the first eukaryotic model system for in-cell NMR spectroscopy. Since 2008, he runs the in-cell NMR group at the FMP in Berlin. His laboratory investigates how cell signaling and post-translational modifications affect protein structure and function, and how intracellular amyloid proteins change their conformations at the onset of human neurodegenerative diseases. To this end, they employ cellular systems ranging from immortalized cell lines to patient-derived induced pluripotent stem cells differentiated into specific neuronal lineages. Phil and his lab will move to the Weizmann Institute of Science in 2018.

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You are invited to have coffee with the speaker 15 minutes before the talk starts.

SFB 1027

## KONTAKT

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