



**Graz Advanced School of Science**  
PHYSICS COLLOQUIUM OF THE UNIVERSITY OF GRAZ AND  
THE GRAZ UNIVERSITY OF TECHNOLOGY

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## **Self-organisation of proteins in cells**

Protein pattern formation is essential for the spatial organization of intracellular processes like cell division, and flagellum positioning. A prominent example of intracellular patterns is the oscillatory pole-to-pole oscillations of Min proteins in *E. coli* whose function is to ensure precise cell division. Cell polarization, a prerequisite for processes such as stem cell differentiation and cell polarity in yeast, is also mediated by a diffusion-reaction process. More generally, these functional modules of cells serve as model systems for self-organization, one of the core principles of life. Under which conditions spatio-temporal patterns emerge, and how these patterns are regulated by biochemical and geometrical factors are major aspects of current research. In this talk I will review recent theoretical and experimental advances in the field of intracellular pattern formation, focusing on general design principles and fundamental physical mechanisms.

**Date:** Tuesday, 11 October 16:15

**Location:** Lecture Hall 05.01, Institute of Physics, University of Graz,  
Universitätsplatz 5

**Host:** Prof. R. Alkofer

For a regularly updated colloquium program see: <https://www.if.tugraz.at/colloquium.html>