

# Symposium Patterns in Nature: Origins, Universality, Functions (SYPN)

jointly organized by  
 the Dynamics and Statistical Physics Division (DY),  
 the Biological Physics Division (BP),  
 the Chemical and Polymer Physics Division (CPP), and  
 the Physics of Socio-economic Systems Division (SOE)

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Pattern formation and self-organization in nature fascinates both the layman and researchers from many disciplines. Each type of self-organized pattern may occur in many different systems, but the fascinating driving mechanisms of self-organized (mostly dissipative) pattern can be as diverse as the systems in which they occur (origins). This raises among others the question about fundamental and common universal properties of patterns shared by different systems - from small cells and the collective behavior of active colloidal particles up to ecological or fluid dynamical (geological) scales? Which functions play universal nonlinear properties of patterns in nature? Are there common strategies for controlling spatio-temporal patterns?

## Overview of Invited Talks and Sessions

(Lecture hall H1)

### Invited Talks

SYPN 1.1	Mon	15:00–15:30	H1	<b>Engineering spatial-temporal organization of bacterial suspensions</b> — •IGOR ARONSON
SYPN 1.2	Mon	15:30–16:00	H1	<b>Collective behaviour and pattern formation in phoretic active matter</b> — •RAMIN GOLESTANIAN
SYPN 1.3	Mon	16:00–16:30	H1	<b>Control and selection of spatio-temporal patterns in complex systems</b> — •SVETLANA GUREVICH
SYPN 1.4	Mon	16:45–17:15	H1	<b>Self-organization of Active Surfaces</b> — •FRANK JÜLICHER
SYPN 1.5	Mon	17:15–17:45	H1	<b>Front instabilities can reverse desertification</b> — •EHUD MERON, CRISTIAN FERNANDEZ-OTO, OMER TZUK

### Related Sessions (exemplarily)

DY 3.1–3.11	Mon	9:30–12:45	H20	<b>Active Matter A (joint session DY/CPP)</b>
DY 5.1–5.9	Mon	10:00–12:45	H3	<b>Convection</b>
DY 15.1–15.12	Tue	10:00–13:15	H3	<b>Pattern Formation</b>
DY 20.1–20.7	Tue	14:00–15:45	H3	<b>Active Matter B (joint session DY/CPP)</b>
BP 13.1–13.12	Wed	9:30–13:00	H4	<b>Active matter I (joint session BP/CPP/DY)</b>
DY 32.1–32.15	Wed	15:00–19:15	H3	<b>Complex Fluids and Soft Matter (joint session DY/CPP)</b>

**Related Plenary and Invited Talks (exemplarily)**

PRV II	Mon	13:15–13:45	H1	<b>Ultimate Rayleigh-Bénard and Taylor-Couette turbulence</b> — •DETLEF LOHSE
PLV II	Mon	14:00–14:45	H1	<b>Self-propelled topological defects in biological systems</b> — •JULIA M YEO-MANS
PLV IV	Tue	8:30– 9:15	H1	<b>Impact of Turbulence on Cloud Microphysics</b> — •EBERHARD BODENSCHATZ
BP 33.1	Fri	12:30–13:15	H1	<b>Pattern formation in active cytoskeletal systems</b> — •ANDREAS R. BAUSCH