

Symposium Topology in Quantum and Classical Physics – From Topological Insulators to Active Matter (SYQC)

jointly organised by
the Biological Physics Division (BP),
the Low Temperature Physics Division (TT), and
the Dynamics and Statistical Physics Division (DY)

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The field of solid state physics, especially of material physics, has grown vigorously thanks to the discovery of topological protection and the universality of topological notions in many solid state systems. These ideas, rooted in the low temperature physics, have since expanded into other domains of physics, even into bio- and geophysics. The topological defects in bacterial colonies and tissues decide the life and death of cells; topological modes arise in active matter on curved surfaces; equatorial waves form at the boundary between two regions with opposite sign of the Coriolis force. It is fascinating that topological ideas flourish even in the chaotic environments of living matter and Earth systems. The aim of this symposium is to bring together the speakers and audience from the seemingly disparate fields of biological and low temperature physics, to explore together the mathematical connection between these two domains.

Overview of Invited Talks and Sessions

(Lecture hall HSZ 01)

Invited Talks

SYQC 1.1	Wed	15:00–15:30	HSZ 01	Topological magnetic whirls for computing — •KARIN EVERSCHOR-SITTE
SYQC 1.2	Wed	15:30–16:00	HSZ 01	Topological waves from solids to geo/astrophysical flows — •PIERRE DELPLACE, ANTOINE VENAILLE, NICOLAS PEREZ, GUILLAUME LAIBE, ARMAND LECLERC, MANOLIS PERROT, BRAD MARSTON
SYQC 1.3	Wed	16:00–16:30	HSZ 01	Topological Phase Transitions in Population Dynamics — •ERWIN FREY
SYQC 1.4	Wed	16:45–17:15	HSZ 01	Topological invariants protect robust chiral currents in active matter — •EVELYN TANG
SYQC 1.5	Wed	17:15–17:45	HSZ 01	Topological defects in biological active matter — •AMIN DOOSTMOHAMMADI

Sessions

SYQC 1.1–1.5	Wed	15:00–17:45	HSZ 01	Topology in Quantum and Classical Physics – From Topological Insulators to Active Matter
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