

Symposium The Physics of CoViD Infections (SYCO)

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

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Viral diseases involve a combination of physical, chemical, and biological, mechanisms—from the development of a viral infection in an organism to the spreading of the disease in a population. The physical understanding of these mechanisms involves on the molecular and cellular level, the structure and dynamics of viral proteins, their interaction with the cell membrane, and the development of drugs to prevent cell entry. On the level of transmission of the disease from person to person, it concerns the dynamics of droplet formation and breakup, and the aero- and hydrodynamics of droplet distribution. Finally, on the population level, simulation studies of the spreading of the disease in large groups help to predict the spreading dynamics and to develop strategies that can be employed to prevent spreading. This also concerns the development of strategies to use of a limited amount of a vaccine most efficiently in the early stages of a viral disease.

Overview of Invited Talks and Sessions

(Lecture hall Audimax 1)

Invited Talks

SYCO 1.1	Mon	13:30–14:00	Audimax 1	A Tethered Ligand Assay to Probe SARS-CoV-2:ACE2 Interactions — MAGNUS BAUER, SOPHIA GRUBER, ADINA HAUSCH, LUKAS MILLES, THOMAS NICOLAUS, LEONARD SCHENDEL, PILAR LOPEZ NAVAJAS, ERIK PROCKO, DANIEL LIETHA, RAFAEL BERNADI, HERMANN GAUB, •JAN LIPFERT
SYCO 1.2	Mon	14:00–14:30	Audimax 1	From molecular simulations towards antiviral therapeutics against COVID-19 — •REBECCA WADE
SYCO 1.3	Mon	14:45–15:15	Audimax 1	The physical phenotype of blood cells is altered in COVID-19 — MARKÉTA KUBÁNKOVÁ, MARTIN KRÄTER, BETTINA HOHBERGER, •JOCHEN GUCK
SYCO 1.4	Mon	15:15–15:45	Audimax 1	Extended lifetime of respiratory droplets in a turbulent vapor puff and its implications on airborne disease transmission — •DETLEF LOHSE, KAI LEONG CHONG, CHONG SHEN NG, NAOKI HORI, MORGAN LI, RUI YANG, ROBERTO VERZICCO
SYCO 1.5	Mon	15:45–16:15	Audimax 1	Beyond the demographic vaccine distribution: Where, when and to whom should vaccines be provided first? — •BENNO LIEBCHEN, JENS GRAUER, FABIAN SCHWARZENDAHL, HARTMUT LÖWEN

Sessions

SYCO 1.1–1.5	Mon	13:30–16:15	Audimax 1	The Physics of CoViD Infections
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