

Intersectional Symposium The Concept of Reality in Physics (SYRP)

lead by the Atomic Physics Division (A)

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Since the early days of quantum mechanics the debate on the epistemological consequences of the theory has never been completely finished. Nowadays we see a revival of this old discussion which began with the dispute between Albert Einstein and Niels Bohr. In particular, the compatibility of special relativity and quantum entanglement is now reconsidered in the light of more straightforward concepts than in the past. In addition, new experiments are providing new evidence for the reality of quantum entanglement. The symposium will highlight these recent developments.

Overview of Invited Talks and Sessions

(lecture room HSZ 01)

Invited Talks

SYRP 1.1	Wed	14:30–15:00	HSZ 01	What is realism in physics? What is the price for maintaining it? — •ANTHONY J. LEGGETT
SYRP 1.2	Wed	15:00–15:30	HSZ 01	Testing concepts of reality with entangled photons in the laboratory and outside — •ANTON ZEILINGER
SYRP 1.3	Wed	15:30–16:00	HSZ 01	Special relativity and quantum entanglement: How compatible are they? — •TIM MAUDLIN
SYRP 2.1	Wed	16:30–17:00	HSZ 01	What can we learn from Bell's inequalities violations: the answers of Einstein and Feynman — •ALAIN ASPECT
SYRP 2.2	Wed	17:00–17:30	HSZ 01	Physics and Narrative — •DAVID ALBERT
SYRP 2.3	Wed	17:30–18:00	HSZ 01	The relativity of inertia and reality of nothing — •ALEXANDER AFRIAT
SYRP 2.4	Wed	18:00–18:30	HSZ 01	Obtaining Information about and Controlling Quantum Particles: Quantum Engineering — •DIETER MESCHEDER

Sessions

SYRP 1.1–1.3	Wed	14:30–16:00	HSZ 01	The Concept of Reality in Physics I
SYRP 2.1–2.4	Wed	16:30–18:30	HSZ 01	The Concept of Reality in Physics II