



ICFO Colloquium MACIEJ LEWENSTEIN 'Abstraction in Science and Art: From Quantum Simulators to Free Improvised Music'

MACIEJ LEWENSTEIN

January 24, 2014

Friday, January 24, 2012, 12:00. ICFO's Auditorium

MACIEJ LEWENSTEIN

ICFO - The Institute of Photonic Sciences \$\$Professor Maciej Lewenstein was born in Poland on 1955. He has won several prizes for his outstanding work in Physics. He is a senior group leader in ICFO since 2005 where he leads the Quantum Optics Theory group.

In my talk I will discuss in a manner accessible to general public the concept of abstraction, as it is understood and used in science, and in art. I will start with discussing the formal idea of abstraction based on mathematics. I will then explain the concept of modeling in physics as a process of abstraction from details toward the essence. This will include examples from a simple pendulum to quantum simulators. I will then turn to the discussion of abstraction in

visual art: discussing the transition from realism, to impressionism, cubism, abstractionism, and, finally abstract expressionism.

Finally, I will turn to music and illustrate (with audio examples) the contemporary trends in music on an example of jazz: from harmonic swing, to bebop, to modal jazz, to free jazz and finally to totally free improvisation.

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