Arnold Sommerfeld Lecture Series

Professor Robbert Dijkgraaf
IAS Princeton, USA

Public Lecture:

The Unreasonable Effectiveness of Quantum Physics in Mathematics

Mathematics has proven to be "unreasonably effective" in understanding nature. The fundamental laws of physics can be captured in beautiful formulae. Remarkably, ideas from quantum theory turn out to carry tremendous mathematical power as well, even though we have little daily experience dealing with elementary particles. The bizarre world of quantum physics not only represents a more fundamental description of nature than what preceded it, it also provides a rich context for modern mathematics. In recent years ideas from quantum field theory, elementary particles physics and string theory have completely transformed mathematics, leading to solutions of deep problems, suggesting new invariants in geometry and topology. Could the logical structure of quantum theory, once fully understood and absorbed, inspire a new realm of mathematics that might be called "quantum mathematics" and will this new language enable us to formulate the fundamental laws of physics?

Tuesday, January 15, 2019, 17:15 h, Room B052, Theresienstr. 39, LMU

Prof. D. Lüst