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When proofs inspire physics, Lenka Zdeborova (EPFL, Lausanne)

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The field of mathematical physics is based on the observation that concepts often first appear in physics and only later can they be rigorously established inspiring new mathematics.

The opposite direction is sometimes questioned, and some colleagues in physics go so far as to look dismissively at the rigorous proofs of results "that they have known for a long time".

In this talk, I want to challenge this position by describing cases related to the statistical physics of disordered systems and statistical inference where rigorous proofs in mathematics provided understanding and insights that were eluding researchers in physics.

Orateur: ZDEBOROVA, Lenka (EPFL & CNRS)