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The destruction of particles: when interactions become too strong for particles to exist

We will explain, to a general audience, what happens in quantum materials when the interactions become so strong that long-lived particles can not exist. While this might sound like a dull fate, the result is actually extremely interesting: a new phase of matter called ultra-quantum matter. We will highlight some of its most surprising properties, and sketch how to model it using mathematical methods from string theory.

Ulf Gran obtained his PhD degree from Chalmers University of Technology, and has held professional positions at the University of Groningen in the Netherlands, King's College London in the UK and at KU Leuven in Belgium. He is now a Professor of Physics at Chalmers University of Technology working at the interface between string theory and condensed matter physics. Gran is also dedicated to teaching and has obtained three prestigious pedagogical prizes.

