UNIVERSITÄT DUISBURG ESSEN

Offen im Denken

Theorie-Kolloquium WS 2023/24
Fr 15.12.2023, 14:00-15:30
MC 351 & online (URL in E-Mail)

udue.de/TheoKoll

High-energy physics for low-power consumption

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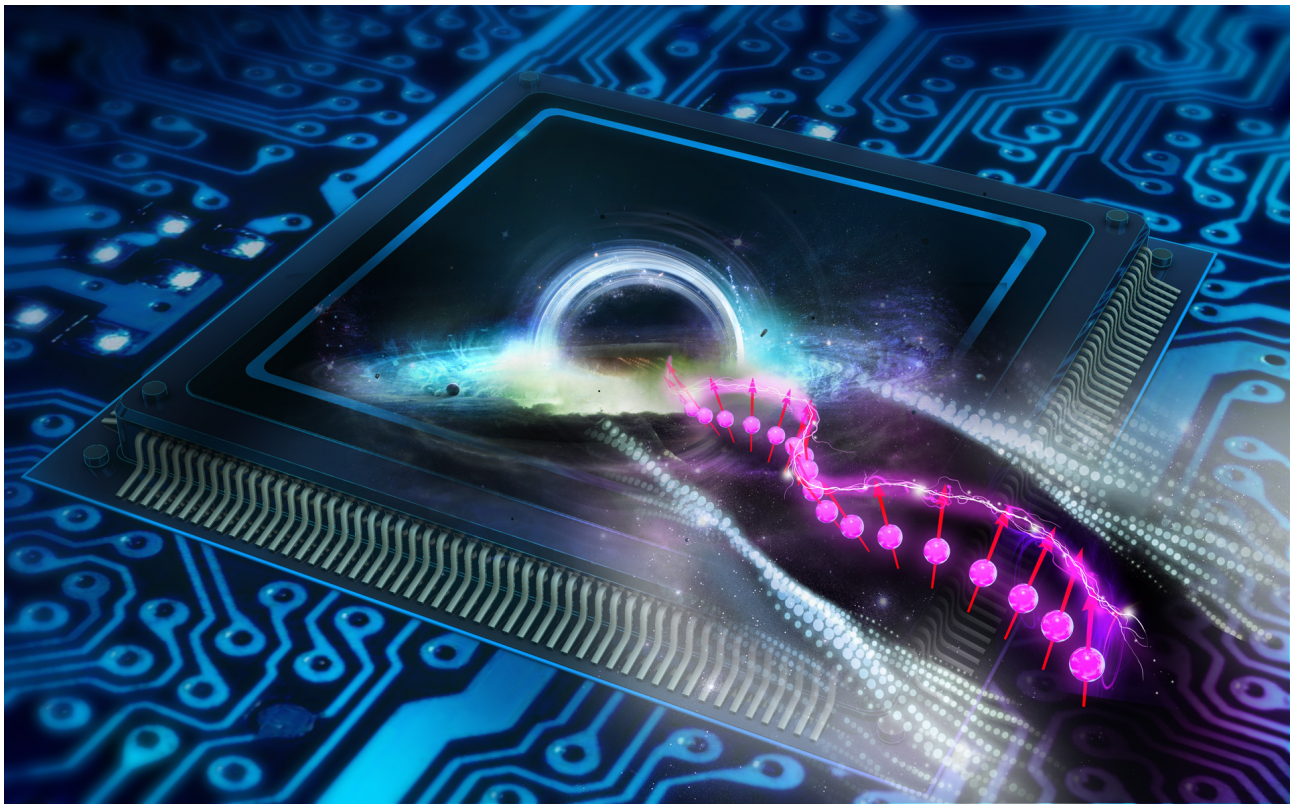

In this talk I will introduce magnonics, the field concerned with utilizing fluctuations of magnetically-ordered materials – spin waves – for sustainable applications. Because spin is not conserved, a major hurdle in the application of spin waves is their decay. Inspired by ideas from theoretical high-energy physics, I will present theoretical proposals for a spin-wave amplifier and a spin-wave laser. The spin-wave amplifier is a realization of the so-called Klein paradox, while the laser is an example of what in the field of analogue gravity is referred to as a “black-hole laser”. Both these examples should be realizable with current experimental techniques.