Contribution ID: **4**   Type: **not specified**

Introduction to quantum annealing

Monday, 28 August 2023 12:30 (1 hour)

This talk is a general introduction to quantum annealing. It covers
- how does a quantum annealer work in theory and what can it be used for
- what are the theoretical and practical limitations
- how to solve problems on quantum annealers, in particular D-Wave quantum annealers as the one hosted by JSC:
- the basic information about the architecture of D-Wave quantum annealers
- how to formulate an optimization problem as a QUBO or Ising problem
- different encoding strategies
- how to incorporate constraints
- how to embed a (logical) problem onto the given hardware graph (considering physical connectivity)
- how to send a problem to the quantum annealer using D-Wave's Ocean SDK and how to interpret the response
Finally, some small examples are presented and the talk ends with a short hands-on exercise.

Presenter: Dr WILLSCH, Madita