

## Talk announcement

**Nepomuk Krenn**  
(RICAM)

Tuesday, Jan 21, 2025  
15:30, S2 416-1

## Robust design optimization by the topological derivative

We consider the design optimization problem of a rotating electric machine in 2D magnetostatic operation which we solve using the topological derivative. In a more “real world” setting geometry or material data is only defined up to some tolerances. A design which is optimal with respect to a fixed value might be very sensitive to small parameter variations. There are various techniques of robust optimization which try to take care of these uncertainties. We present a deterministic approach trying to optimize the worst case scenario. This leads to a min-max problem which we solve using an extension of the Danskin-Theorem to topological derivatives.