Regularization Techniques for Wave Equations

Sarah Eberle[1]

In this talk we introduce regularization techniques for wave equations. In more detail, we take a look at the elasto-static and elasto-oscillatory equation. Thus, we start with the formulation of the solvability of the elastic wave equation in terms of fundamental solutions, which are tensors. The type of regularization is chosen in such a way that the regularization is sufficiently smooth (i.e., sufficiently often differentiable) and 'close' to the fundamental solution in structure. Hence, our approach reflects the physical nature in appropriate sense. These taylorized regularization techniques of the fundamental solution are the essential tools for the multiscale approximation.

[1] Universität Tübingen, Mathematisches Institut
eberle@na.uni-tuebingen.de