
Einladung zu einem Vortrag
im Rahmen des DK-Seminars des Karl Popper Kollegs von

Prof. Shari Moskow

Drexel University
zum Thema

Homogenization of a Transmission Problem

Ort: I.2.01 der Universität Klagenfurt

Zeit: Mittwoch, 10. Mai 2017, um 11 Uhr

Kurzfassung:

We study the homogenization of a transmission problem arising in the scattering theory for bounded inhomogeneities with periodic coefficients modeled by the anisotropic Helmholtz equation. The coefficients are assumed to be periodic functions of the fast variable, specified over the unit cell with characteristic size ϵ . Using multiple scale expansion, we find bulk and boundary corrections to the leading-order ($O(1)$) homogenized transmission problem. The analysis in particular provides the H^1 and L^2 estimates of the error committed by the first-order-corrected solution considering (i) bulk correction only and (ii) boundary and bulk correction. We treat explicitly the $O(\epsilon)$ boundary correction for the transmission problem when the scatterer is a unit square and show it has an L^2 -limit as ϵ goes to 0, provided that the boundary cutoff of cells is fixed. We also establish the order ϵ^2 bulk correction describing the mean wave motion inside the scatterer. The analysis also highlights a previously established, yet scarcely recognized, fact that the first order bulk correction of the mean motion vanishes identically.

* Joint work with Fioralba Cakoni and Bojan Guzina

Das Institut für Mathematik freut sich auf Ihren Besuch.

<https://www.math.aau.at/>