MAFIA - the seminar you can't refuse

Optimization of Robin Laplacian eigenvalue with indefinite weight in spherical shell

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Abstract:
We consider an eigenvalue problem with an indefinite weight function and Robin boundary condition. This problem is motivated by the study of population dynamics. We use the known bang-bang distribution of the optimal weight function to model this problem as a shape optimization one. The solution of the 1-dimensional case is well known, but the higher-dimensional cases are widely open. We inspect this problem in a spherical shell domain in any dimension and apply changes of variables to obtain the optimal set. This presentation is based on joint work with B. Schneider and D. Schneiderová.