

# CONTINUITY OF THE FIRST EIGENVALUE FOR A FAMILY OF DEGENERATE EIGENVALUE PROBLEMS

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ABSTRACT. For each  $\alpha \in [0, 2)$  we consider the eigenvalue problem  $-\operatorname{div}(|x|^\alpha \nabla u) = \lambda u$  in a bounded domain  $\Omega \subset \mathbb{R}^N$  ( $N \geq 2$ ) with smooth boundary and  $0 \in \Omega$  subject to the homogeneous Dirichlet boundary condition. Denote by  $\lambda_1(\alpha)$  the first eigenvalue of this problem. Using  $\Gamma$ -convergence arguments we prove the continuity of function  $\lambda_1$  with respect to  $\alpha$  on the interval  $[0, 2)$ . This is a joint work with Mihai Mihăilescu.