

# ELLIPTIC AND PARABOLIC SPECTRAL PROBLEMS WITH THE $p$ -LAPLACIAN

PETER TAKÁČ

We treat a canonical spectral problem for the Dirichlet  $p$ -Laplacian near the first eigenvalue  $\lambda_1$ . We give a precise asymptotic formula for large solutions of the spectral problem corresponding to the Fredholm alternative, thus obtaining a priori bounds under various conditions imposed on the right-hand side of the equation

$$-\Delta_p u - \lambda|u|^{p-2}u = f(x), \quad x \in \Omega.$$

We will discuss also the case when  $f(x, u)$  depends on the unknown function  $u$ . Finally, we will formulate an antimaximum principle for the parabolic problem

$$\frac{\partial u}{\partial t} - \Delta_p u - \lambda|u|^{p-2}u = f(x), \quad (x, t) \in \Omega \times (0, T).$$

## REFERENCES

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- [2] P. Drábek, P. Girg, and P. Takáč, *Nonlinear perturbations of homogeneous quasilinear operators: bifurcation from infinity, existence and multiplicity*, J. Differential Equations, **204**(2) (2004), 265–291.

INSTITUT FUER MATHEMATIK, UNIVERSITAET ROSTOCK, UNIVERSITAETSPLATZ 1, D-18055 ROSTOCK, GERMANY

*E-mail address:* `peter.takac@uni-rostock.de`