ESSENTIAL SPECTRA OF STURM–LIOUVILLE OPERATORS

WITH CO-AUTHORS J. BEHRNDT (GRAZ), G. TESCHL (VIENNA), AND P. SCHMITZ (ILMENAU)

CARSTEN TRUNK

Abstract. We develop relative oscillation theory for general Sturm-Liouville differential expressions of the form

$$\frac{1}{r}\left(-\frac{\mathrm{d}}{\mathrm{d}x}p\frac{\mathrm{d}}{\mathrm{d}x}+q\right)$$

and prove perturbation results and invariance of essential spectra in terms of the real coefficients p, q, r. The novelty here is that we also allow perturbations of the weight function r in which case the unperturbed and the perturbed operator act in different Hilbert spaces. Moreover, we extend the classical Kneser result.

Department of Mathematics, Technische Universität Ilmenau, Postfach 100565, 98648 Ilmenau, Germany
Email address: carsten.trunk@tu-ilmenau.de
URL: https://www.tu-ilmenau.de/funktionalanalysis