

# Partial symmetry of least energy nodal solutions to some variational problems

We investigate the symmetry properties of several radially symmetric minimization problems. The minimizers which we obtain are nodal solutions of superlinear elliptic problems, or eigenfunctions of weighted asymmetric eigenvalue problems, or they lie on the first curve in the Fucik spectrum. In all instances we prove that the minimizers are foliated Schwarz symmetric. We give examples showing that the minimizers are in general not radially symmetric. The basic tool which we use is polarization, a concept going back to Ahlfors. We develop this method of symmetrization for sign changing functions.

This is joint work with Thomas Bartsch and Michel Willem.