

LACK OF COMPACTNESS, SYMMETRIES AND A FLOWER-SHAPE GEOMETRY

RAFFAELLA SERVADEI

Several important problems arising in many research fields, such as physics and differential geometry, lead to consider semilinear variational elliptic equations defined on unbounded domains of the Euclidean space and a great deal of work has been devoted to their study. From the mathematical point of view, probably the main interest relies on the fact that often the tools of nonlinear functional analysis, based on compactness arguments, cannot be used, at least in a straightforward way, and some new techniques have to be developed.

In a joint paper with Giuseppe Devillanova (Politecnico di Bari) and Giovanni Molica Bisci (Urbino) we introduce a group theoretical scheme, raised in the study of problems which are invariant with respect to the action of orthogonal subgroups, to show the existence of multiple solutions distinguished by their different symmetry properties.

Aim of the talk is to present this construction, called flower-shape geometry, and to show its applications to the study of nonlinear problems set in strip-like domains.

DIPARTIMENTO DI SCIENZE PURE E APPLICATE (DISPEA)
UNIVERSITÀ DEGLI STUDI DI URBINO CARLO BO
PIAZZA DELLA REPUBBLICA 13
61029 URBINO, ITALY
E-mail address: `raffaella.servadei@uniurb.it`