## On some inequalities involving eigenvalues of the Neumann Laplacian

## CRISTIAN ENACHE

Department of Mathematics and Informatics, Ovidius University,

## Constanta 900 527, Romania

E-mail address: cenache@univ-ovidius.ro

In this talk we are concerned with the eigenvalues of the Neumann Laplacian on various classes of domains of given measure: simply-connected Lipschitz planar domains, *n*-sided planar polygons and smooth *N*-dimensional domains. In each case, we consider some quantities involving low eigenvalues of the Neumann Laplacian for which we obtain new inequalities. Moreover, we sharpen an universal bound derived by M. Ashbaugh and R. Benguria. Our investigations make use of some properties of conformal mappings, Bessel functions, symmetric domains or some isoperimetric inequalities for moments of inertia. This is a joint work with Prof. Gérard A. Philippin, from Université Laval, Canada.