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Research interest: Partial differential equations and calculus of variations, optimization.

Recent publications:

[1] N. Antonić, K. Burazin, M. Vrdoljak: *Second-order equations as Friedrichs systems*, **Nonlinear Analysis B: Real World Applications** (in press)

[2] N. Antonić, K. Burazin, M. Vrdoljak: *Connecting classical and abstract theory of Friedrichs systems via trace operator*, **ISRN Mathematical Analysis** (in press)

[3] N. Antonić, M.Vrdoljak: *Partial relaxation and optimal design problems*, **International mathematical forum 33** (2011) 1601-161

[4] N. Antonić, M. Vrdoljak: *Parabolic H-convergence and small-amplitude homogenization*, **Applicable Analysis 88** (2009) 1493-1508

[5] N. Antonić, M.Vrdoljak: *Small-Amplitude homogenisation of diffusion equation*, **International Journal of Pure and Applied Mathematics 50** (2009) 233-238

Selected publications:

[1] M. Vrdoljak: Optimality *criteria method for optimal design in hyperbolic problems*, **Mathematical Communications 15** (2010) 555-572

[2] M. Vrdoljak: On Hashin-Shtrikman bounds for mixtures of two isotropic materials}, **Nonlinear Analysis B: Real World Applications 11** (2010) 4597-4606

[3] N. Antonić, M. Vrdoljak: *Gradient methods for multiple state optimal design problems*, **Annali dell'Università di Ferrara 53** (2007) 177-187

[4] N. Antonić, M. Vrdoljak: *Sequential laminates in multiple-state optimal design problems*, **Mathematical Problems in Engineering** (2006) Art. ID 68695, 14 pp.

[5] N. Antonić, M. Vrdoljak: *Optimal design and hyperbolic problems*, **Mathematical Communications 4** (1999) 121-129