

Shape optimization problems and spectral theory

May 28 - June 1, Program

Monday, May 28

8:30 - 9:10 Pedro Freitas (Lisboa): Optimization of higher eigenvalues of the Laplace operator

9:15 - 9:55 Bruno Colbois (Neuchatel): Upper bound for the spectrum of the Laplacian : a metric approach

10:00 Coffee break

10:30 - 11:10 Rick Laugesen (Urbana-Champaign): Sharp isoperimetric bounds on spectral functionals of starlike domains

11:15 - 11:55 Aldo Pratelli (Pavia): A general existence result for minimizers of spectral problems

12:00 - 12:20 Francesco Chiacchio (Napoli): Isoperimetric estimates for the first Neumann eigenvalue of the Hermite operator

12:30 Lunch

16:00 - 16:40 Dan Tiba (Bucarest): Finite Element Discretization in Shape Optimization Problems

16:45 - 17:05 Gisella Croce (Le Havre): An isoperimetric inequality for a nonlinear eigenvalue problem

17:10 Coffee break

17:30 - 17:50 Juan Pablo Agnelli (Cordoba): Shape optimization for tumor location

18:00 Open Problems Session

19:30 Dinner

Tuesday, May 29

8:30 - 9:10 José Arrieta (Madrid): Thin domains with oscillatory boundaries

9:15 - 9:55 Susanna Terracini (Milano): Entire solutions for competition-diffusion systems and optimal partitions

10:00 Coffee break

10:30 - 11:10 Jan Sokolowski (Nancy): Topological derivatives in shape optimization

11:15 - 11:55 Alfred Wagner (Aachen): The Second Domain Variation for some Optimal Shape Problems

12:00 - 12:20 Alexandre Girouard (Neuchatel): Local and global stability of the Dirichlet spectrum

12:30 Lunch

16:00 - 16:40 Andrea Colesanti (Firenze): Hadamard's variational formulas for some functionals defined in the class of convex bodies

16:45 - 17:25 Ilaria Fragala (Milano): On geometric inequalities for log-concave functions

17:30 Coffee break

18:00 - 18:20 Jimmy Lamboley (Paris Dauphine): Shape optimization under convexity constraint

18:25 - 18:45 Bozidar Velichkov (Pisa): Shape optimization problems with internal constraint

18:50 - 19:10 Antoine Lemenant (Paris 7): Convex minimizers of the average distance

19:30 Dinner

Wednesday, May 30

8:30 - 9:10 Bernard Helffer (Paris Orsay): Magnetic characterization of minimal partitions

9:15 - 9:55 Thomas Hoffmann-Ostenhof (Vienna): Spectral minimal partitions: Some recent explicit results for the cylinder, the torus, etc

10:00 Coffee break

10:30 - 11:10 Guy Bouchitté (Toulon): A free boundary problem arising in optimal design of thin torsion rods

11:15 - 11:55 Yves Colin de Verdière (Grenoble): The magnetic Morse index formula of Gregory Berkolaiko

12:00 - 12:20 Farid Bozorgnia (Lisboa): Optimal partitions for first eigenvalues of Laplace operator

12:30 Lunch

Free afternoon

Thursday, May 31

8:30 - 9:10 Nicola Fusco (Napoli): On the stability of Almgren's isoperimetric inequality

9:15 - 9:55 Nikolai Nadirashvili (Marseille): The quantitative isoperimetric inequality: new results and extensions

10:00 Coffee break

10:30 - 11:10 Friedemann Brock (Beyruth): Weighted isoperimetric in cones inequalities and applications

11:15 - 11:55 Juan Casado-Dias (Sevilla): The behavior of a thin flow satisfyin the slip condition on a rough wall

12:00 - 12:20 Pier-Alberto Sicbaldi (Marseille): Geometry and topology of some overdetermined elliptic problems

12:30 Lunch

16:00 - 16:40 David Krejcirik (Praha): The Cheeger constant of curved strips

16:45 - 17:25 Paolo Salani (Firenze): An overdetermined problem with non constant boundary condition

17:30 Coffee break

18:00 - 18:20 Mette Iversen (Bristol): Minimising convex combinations of the first three eigenvalues

18:25 - 18:45 Marc Dambrine (Pau): A Faber-Krahn type inequality for the second eigenvalue of the Ventcel-Steklov operator

19:30 Dinner

Friday, June, 1

8:30 - 9:10 Rafael Benguria (Santiago): A New Estimate on the Two-Dimensional Indirect Coulomb Energy

9:15 - 9:55 Evans Harrell (Atlanta): Some semiclassically sharp inequalities for spectra of Schrödinger operators on surfaces and hypersurfaces

10:00 Coffee break

10:30 - 11:10 Julie Clutterbuck (Canberra): Optimal lower bound on the spectral gap

11:15 - 11:55 Michiel van den Berg (Bristol): Heat equation and torsion function

12:00 - 12:20 Yannick Privat (Rennes): Optimal design problems for conservative equations

12:30 Lunch

End of the Conference