



The 2005 EMS LECTURES in PORTUGAL



European
Mathematical
Society

REGULARITY of FREE BOUNDARIES in PARABOLIC OBSTACLE TYPE PROBLEMS

N. Uraltseva
St. Petersburg, Russia

University of Coimbra, Department of Mathematics
10-11 June 2005

University of Lisbon, CMAF/Complexo Interdisciplinar
14 June 2005



Programme

1. Introduction and formulations of the parabolic obstacle problems
2. Monotonicity formulas
3. Optimal regularity of solutions: interior and boundary estimates; two phase problem
4. Lebesgue measure of the free boundary
5. Balanced energy
6. Classification of global solutions
7. Properties of the free boundaries: regularity and behaviour near the given boundary
8. Generalizations

PROFESSOR URALTSEVA, currently the head of Mathematical Physics in St. Petersburg State University, is a well-known specialist in the field of nonlinear PDE's. Her fundamental results in elliptic and parabolic PDE's, have influenced and continues to influence generations of mathematicians working within the field. Nina Uraltseva's works range over classical problems such as the theory of quasi-linear equations, variational inequalities, Signorini problem, p -harmonic functions, quasi-conformal maps, extremal problems for area minimizing functionals, mean curvature flows, free boundary problems of obstacle type. During the last decade, she has been working on regularity for free boundary problems in vicinity of contact points between free and fixed boundaries.

The EMS Lecture takes place in coordination with the FBP2005 conference organized by the University of Coimbra/CMUC in collaboration with the University of Lisbon/ CMAF <http://www.fbp-2005.org/>

SCHEDULE and LOCATION



University of Coimbra, Department of Mathematics

Friday, 10 June, 14:00, Room Pedro Nunes and 17:00, Room 2.5
Saturday, 11 June, 18:15, Room Pedro Nunes

University of Lisbon, CMAF/Complexo Interdisciplinar

Tuesday, 14 June, 11:00 and 14:30, Anfiteatro do Complexo Interdisciplinar

