

PREFACE

The conference “Self-Similar Solutions of Nonlinear PDE” was held at the Banach Center, Będlewo, from September 5 to September 9, 2005.

There were sixty-three participants who presented forty-four talks. This meeting was devoted to a discussion of recent results on the existence of self-similar solutions for various important nonlinear partial differential equations, and a discussion of the role of self-similarity concepts in the description of the temporal asymptotics of general solutions.

More detailed topics of the conference are given below:

- Entropy production method from a PDE point of view and convergence of solutions of the Fokker–Planck type equations toward steady states.
- Porous media equations and related parabolic equations: existence of self-similar solutions and their asymptotic stability.
- Self-similar solutions of conservation laws with diffusion and/or dispersion, the Schrödinger equation, the Vlasov–Poisson equations.
- Self-similar blow-up profiles in nonlinear heat equation, nonlinear Schrödinger equation, Zakharov system, KdV equation, etc.
- Travelling and rarefaction waves in conservation laws and their role in the large time behavior of general solutions.
- Self-similar solutions of the Boltzmann equation, Navier–Stokes system, and semi-linear wave equation.
- Self-similarity concepts in statistical mechanics and mathematical biology, with a special emphasis on chemotaxis phenomena and coagulation equations.

Fifteen papers on the subjects related to lectures and communications delivered during the conference have been accepted for publication in this volume.

It is our pleasure to thank the participants of the conference and contributors to this volume for interesting scholarly discussions. Thanks are also due to the referees whose criticism permitted improving the quality of some papers.

The conference was supported by the Stefan Banach International Mathematical Center, Polish Ministry of Science (MNI), Université de Marne-la-Vallée, Uniwersytet Wrocławski and the Committee for Mathematics, Polish Academy of Sciences.

As usual, the Banach Center staff took care of a very smooth organization of the conference. We thank all of them.

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