

数理解析研究所講究録 1545

微分方程式の粘性解理論とその発展

京都大学数理解析研究所

2007年4月

RIMS Kôkyûroku 1545

*Viscosity Solution Theory of Differential
Equations and its Developments*

April, 2007

Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

This is a report of research done at Research Institute for Mathematical Sciences, Kyoto University. The papers contained herein are in final form and will not be submitted for publication elsewhere.

Preface

This volume contains the proceedings of the lectures delivered at the conference, *Viscosity Solution Theory of Differential Equations and its Developments*, held at the Research Institute for Mathematical Sciences, Kyoto University, during May 31 - June 2, 2006. All the papers are concerned with recent developments in the theory of viscosity solutions and related topics in nonlinear partial differential equations.

The conference was possible by support from the Research Institute for Mathematical Sciences. Also, financial support from the Japan Society for the Promotion of Science through its Grant-in-Aid for Scientific Research was helpful for making the conference successful. I wish to thank the Research Institute for Mathematical Sciences and the Japan Society for the Promotion for their support and all those who cooperated to publish this volume.

Shigeaki Koike (Saitama University)

Hitoshi Ishii (Waseda University)

Yoshikazu Giga (University of Tokyo)

February, 2007

微分方程式の粘性解理論とその発展
Viscosity Solution Theory of Differential Equations and its Developments
RIMS 研究集会報告集

2006年5月31日～6月2日

研究代表者 小池 茂昭 (Shigeaki Koike)

副代表者 石井 仁司 (Hitoshi Ishii)

" 儀我 美一 (Yoshikazu Giga)

目 次

1. Maximum principle via the iterated comparison function method	1
埼玉大・理工学(Saitama U.)	小池 茂昭(Shigeaki Koike)
2. On the removability of a level set for solutions to fully nonlinear equations	13
広島大・理学(Hiroshima U.)	滝本 和広(Kazuhiro Takimoto)
3. Min-max representation in ergodic type Bellman equation of first order under general stability conditions	32
名大・情報科学(Nagoya U.)	貝瀬 秀裕(Hidehiro Kaise)
4. The Allen-Cahn type equation with multiple-well potentials and mean curvature flow equation	38
東大・数理科学(U. Tokyo)	大塚 岳(Takeshi Ohtsuka)
5. Asymptotic profile for solutions of Keller-Segel model	47
津田塾大・学芸(Tsuda U.)	杉山 由恵(Yoshie Sugiyama)
Leipzig U.	Stephan Luckhaus
6. Nonlinear Diffusion with a Stationary Level Surface	54
愛媛大・理工学(Ehime U.)	坂口 茂(Shigeru Sakaguchi)
7. AN EVOLUTION PROBLEM FOR THE SINGULAR INFINITY LAPLACIAN	66
U. Jyväskylä	Petri Juutinen
8. Convergence rates of asymptotic solutions to Hamilton-Jacobi equations in Euclidean n space	83
富山大・理工学(U. Toyama)	藤田 安啓(Yasuhiro Fujita)
9. Asymptotic solutions of a class of Hamilton-Jacobi equations	88
阪大・基礎工学(Osaka U.)	市原 直幸(Naoyuki Ichihara)
10. Traveling wave solutions of the Allen-Cahn equations	112
龍谷大・理工(Ryukoku U.)	二宮 広和(Hirokazu Ninomiya)

1 1.	RECENT ADVANCES IN THE THEORY OF ARONSSON EQUATIONS	-----	122
	U. Jyväskylä	Petri Juutinen	
1 2.	UNIQUENESS AND EXISTENCE FOR SPIRAL CRYSTAL GROWTH	-----	136
	北海道教育大・札幌校(Hokkaido U. Edu.)	後藤 俊一(Shun'ichi Goto)	
1 3.	ASYMPTOTIC SOLUTIONS FOR LARGE-TIME OF HAMILTON-JACOBI EQUATIONS IN EUCLIDEAN n SPACE	-----	140
	早大・教育・総合科学(Waseda U.)	石井 仁司(Hitoshi Ishii)	