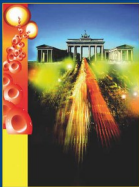


A. Schadschneider T. Pöschel R. Kühne
M. Schreckenberg D. E. Wolf
Editors

TRAFFIC AND GRANULAR FLOW '05



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With 402 Figures, 159 in Colour, and 15 Tables

 Springer

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Preface

The conference series *Traffic and Granular Flow* has been established in 1995 and has since then been held biannually. At that time, the investigation of granular materials and traffic was still somewhat exotic and was just starting to become popular among physicists.

Originally the idea behind this conference series was to facilitate the convergence of the two fields, inspired by the similarities of certain phenomena and the use of similar theoretical methods. However, in recent years it has become clear that probably the differences between the two systems are much more interesting than the similarities. Nevertheless, the importance of various interrelations among these fields is still growing. The workshop continues to offer an opportunity to stimulate this interdisciplinary research.

Over the years the spectrum of topics has become much broader and has included also problems related to topics ranging from social dynamics to biology. The conference manages to bring together people with rather different background, ranging from engineering to physics, mathematics and computer science. Also the full range of scientific tools is represented with presentations of empirical, experimental, theoretical and mathematical work.

The workshop on *Traffic and Granular Flow '05* was the sixth in this series. Previous conferences were held in Jülich (1995), Duisburg (1997), Stuttgart (1999), Nagoya (2001), and Delft (2003). For its 10th anniversary, Berlin was chosen as location, the largest city and capital of Germany. Berlin is also one of the centers for transport related research and hosts many research institutes that have a long history in the fields covered by the workshop.

The *TGF '05* took place from October 10-12, 2005 at the Humboldt University. World-renowned scientists worked here and read famous lectures, such as Max Born, Albert Einstein, Peter Debye, James Franck, Fritz Haber, Otto Hahn, Werner Heisenberg, Gustav Hertz, Jacob van't Hoff, Robert Koch, Max v. Laue, Walter Nernst, Max Planck, Erwin Schroedinger, and Wilhelm Wien, to name only few of the 29 Nobel price laureates of the Humboldt University.

It is one of the most famous venues in the heart of Berlin with locations touching the high-lights and low-lights of German-European and World History. It is located vis-à-vis of the Bebel square where 1933 the Nazi burned books of such famous authors like Karl Marx, Heinrich Heine, Sigmund Freud, Bertolt Brecht, Kurt Tucholsky, and Carl von Ossietzky. The German Reichs-

tag, the house of the parliament, close to the Humboldt University was burned in the same year which was the occasion for the prosecution of dissenters and ended with millions of murdered people in the concentration camps and World War 2.

But also very close to the Humboldt University, at the Brandenburg gate, in November 1989 people were sitting on the Berlin wall celebrating the end of cold war. These pictures went all over the world. They shaped the image of a new, young, open and optimistic Berlin.

We hope that this spirit of openness could also be felt at the conference. Experts from physics, engineering, computer sciences and mathematics experienced a unique forum where current problems and solutions were presented and discussed to deepen the understanding and knowledge of the physics of traffic and the physics of granular media. Both areas have many important applications in society and industry. "Free Flow" is an indispensable prerequisite for acceptable traffic but it is also an existential precondition for mixing powder for production of tablets or packaging in bags and exactly closing. The main goal of the conference was to encourage theorists and practitioners of both areas to a common view on the dynamics of transportation processes for mutual benefit. It attracted nearly 100 participants from all over the world, from almost 20 countries.

The papers presented show the current progress in modelling, computer simulation, experiments and phenomena description as well as the perspectives for application. The importance of the interregulations between both research areas is growing. The conference pays tribute to this development and opens new possibilities for interdisciplinary research. The topics covered are, beside others, vehicular traffic, pedestrian traffic, granular flow, traffic in urban road networks and computer networks and collective phenomena in biological systems.

The conference ignited a broad public interest and the organizers gratefully acknowledge financial support from the German Research Society (Deutsche Forschungsgemeinschaft), from the Technology Foundation Berlin (Technologiestiftung Berlin) and from the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt, DLR).

This conference would not have been possible without many people helping behind the scenes. In particular we like to thank Roberto Aoki, Ute Böttger, Petra Hänssgen, Steffi Lehmann from the DLR and Alireza Namazi from the University of Cologne.

Köln, Berlin, Duisburg
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Contents

Part I Granular Flow

Saturn's Rings Seen by Cassini Spacecraft: Discoveries, Questions and New Problems <i>André Brahic</i>	3
Universality Classes for Force Networks in Jammed Matter <i>Srdjan Ostojic and Bernard Nienhuis</i>	31
Species Segregation and Dynamical Instability of Horizontally Vibrated Granular <i>Massimo Pica Ciamarra, Alessandro Sarracino, Mario Nicodemi, and Antonio Coniglio</i>	41
Lattice Versus Lennard-Jones Models with a Net Particle Flow <i>Manuel Díez-Minguito, Pedro L. Garrido, and Joaquín Marro</i>	53
Dune Formation <i>Hans J. Herrmann</i>	63
Dynamics of Aeolian Sand Heaps and Dunes: The Influence of the Wind Strength <i>Sebastian Fischer and Klaus Kroy</i>	79
Granular Shearing and Barkhausen Noise <i>Andrea Baldassarri, Fergal Dalton, Alberto Petri, Luciano Pietronero, Giorgio Pontuale, and Stefano Zapperi</i>	91
Component Analysis of Granular Friction <i>Fergal Dalton, Alberto Petri, Giorgio Pontuale, and Luciano Pietronero</i> .	101

Granular Flow and Pattern Formation on a Vibratory Conveyor
Christof A. Krülle, Andreas Götzendorfer, Rafał Grochowski, Ingo Rehberg, Mustapha Rouijaa, and Peter Walzel 111

Erosion Waves: When a Model Experiment Meets a Theory
Eric Clement, Florent Malloggi, Bruno Andreotti, and Igor S. Aranson . 129

Bidisperse Granular Flow on Inclined Rough Planes
Céline Goujon, Blanche Dalloz-Dubrujeaud, and Nathalie Thomas 147

Sheared and Vibrated Granular Gas in Microgravity
Yan Grasselli, Georges Bossis, and André Audoly 157

A Domino Model for Granular Surface Flow
Andreas Hoffmann and Stefan J. Linz 167

Morphological Change of Crack Patterns Induced by Memory Effect of Drying Paste
Akio Nakahara and Yousuke Matsuo 181

Hydrodynamic Interactions Between Electrically Charged Grains in Suspensions
Jochen H. Werth, Henning Arendt Knudsen, and Dietrich E. Wolf 187

Particle Discharge Process from a Capillary Pipe
Qing-Song Wu, Mao-Bin Hu, Xiang-Zhao Kong, and Yong-Hong Wu . . 193

Part II Transport in Biological Systems

From Intracellular Traffic to a Novel Class of Driven Lattice Gas Models
Hauke Hinsch, Roger Kouyos, and Erwin Frey 205

Traffic Phenomena in Biology: From Molecular Motors to Organisms
Debashish Chowdhury, Andreas Schadschneider, and Katsuhiro Nishinari 223

Cooperative Behaviour of Semiflexible Polymers and Filaments
Jan Kierfeld, Pavel Kraikivski, Torsten Kühne, and Reinhard Lipowsky . 239

Traffic of Molecular Motors
Stefan Klumpp, Melanie J. I. Müller, and Reinhard Lipowsky 251

Stochastic Modelling and Experiments on Intra-Cellular Transport of Single-Headed Molecular Motors
Katsuhiko Nishinari, Yuko Kanayama, Yasushi Okada, Philip Greulich, Andreas Schadschneider, and Debashish Chowdhury 263

Traffic on Bidirectional Ant Trails: Coarsening Behaviour and Fundamental Diagrams
Alexander John, Ambarish Kunwar, Alireza Namazi, Andreas Schadschneider, Debashish Chowdhury, and Katsuhiko Nishinari 269

Phase Diagram of Group Formation in 2-d Optimal Velocity Model
Yuki Sugiyama, Akihiro Nakayama, and Eiji Yamada 277

On the Harmonic-Mean Property of Model Dispersive Systems Emerging Under Mononuclear, Mixed and Polynuclear Path Conditions
Adam Gadowski, Natalia Kruszewska, Marcel Ausloos, and Jakub Tadych 283

Part III Pedestrians

Pedestrian Free Speed Behavior in Crossing Flows
Winnie Daamen and Serge P. Hoogendoorn 299

The Fundamental Diagram of Pedestrian Movement Revisited – Empirical Results and Modelling
Armin Seyfried, Bernhard Steffen, Wolfram Klingsch, Thomas Lippert, and Maik Boltes 305

Flow-Density Relations for Pedestrian Traffic
Winnie Daamen and Serge P. Hoogendoorn 315

Avoiding Inefficient Oscillations in Intersecting Vehicle and Pedestrian Flows by a Speed Limit
Rui Jiang and Dirk Helbing 323

Microscopic Calibration and Validation of Pedestrian Models: Cross-Comparison of Models Using Experimental Data
Serge P. Hoogendoorn and Winnie Daamen 329

The Simulation of Crowds at Very Large Events
Hubert Klüpfel 341

Transport-Equilibrium Schemes for Pedestrian Flows with Nonclassical Shocks
Christophe Chalons 347

Part IV Networks and Urban Traffic

Decision-Making and Transport Costs in Complex Networks
Sean Gourley and Neil F. Johnson 359

Specifics of Fundamental Diagram in Urban Traffic
Kai-Uwe Thiessenhusen and Peter Wagner 375

A Fluidodynamic Model for Traffic in a Road Network
Mauro Garavello and Benedetto Piccoli 383

Approach to Critical Link Analysis of Robustness for Dynamical Road Networks
Victor L. Knoop, Serge P. Hoogendoorn, and Henk J. van Zuylen 393

Traffic Flow in Bogotá
Luis Olmos and José Daniel Muñoz 403

Simulating Pedestrian-Vehicle Interaction in an Urban Network Using Cellular Automata and Multi-Agent Models
Abhimanyu Godara, Sylvain Lassarre, and Arnaud Banos 411

Multi-Phase Signal Setting and Capacity of Intersections
Chang Yulin, Zhang Peng, Mao Lin, and Gong Zhen 419

Stability of Flows on Networks
Alexander P. Buslaev, Alexander G. Tatashev, and Marina V. Yashina . 427

Laboratory Experiments with Nagel-Schreckenberg Algorithm
Thorsten Chmura, Thomas Pitz, and Michael Schreckenberg 437

Part V Traffic Flow: Theory

Phase Transitions in Stochastic Models of Flow
Martin R. Evans 447

Metastability of Traffic Flow in Zero-Range Model
Jevgenijs Kaupužs, Reinhard Mahnke, and Rosemary J. Harris 461

Extension of Cluster Dynamics to Cellular Automata with Shuffle Update
David A. Smith and R. Eddie Wilson 467

Asymmetric Exclusion Processes with Non-Factorizing Steady States
Marko Wölki, Andreas Schadschneider, and Michael Schreckenberg 473

Two-Capacity Flow: Cellular Automata Simulations and Kinematic-Wave Models
Paul Nelson 481

Mechanical Restriction Versus Human Overreaction: Accident Avoidance and Two-Lane Traffic Simulations
Andreas Pottmeier, Christian Thiemann, Andreas Schadschneider, and Michael Schreckenberg 503

Ramp Effects in Asymmetric Simple Exclusion Processes
Ding-wei Huang 509

Linking Cellular Automata and Optimal-Velocity Models Through Wave Selections at Bottlenecks
Peter Berg and Justin Findlay 515

Linking Synchronized Flow and Kinematic Waves
Jorge A. Laval 521

Probabilistic Description of Traffic Breakdown
Reinhard Mahnke and Reinhart Kühne 527

How to Calculate Traffic Breakdown Probability?
Julia Hinkel 537

Models for Highway Traffic and Their Connections to Thermodynamics
Hans Weber, Reinhard Mahnke, Jevgenijs Kaupužs, and Anders Strömberg 545

Variance-Driven Traffic Dynamics
Martin Treiber, Arne Kesting, and Dirk Helbing 551

Stability of Steady State Solutions in Balanced Vehicular Traffic
Florian Siebel and Wolfram Mauser 559

Wave Selection Problems in the Presence of a Bottleneck
Jonathan Ward, R. Eddie Wilson, and Peter Berg 565

Impacts of Lane Changes at Merge Bottlenecks: A Theory and Strategies to Maximize Capacity
Jorge Laval, Michael Cassidy, and Carlos Daganzo 577

Modeling a Bottleneck by the Aw-Rascle Model with Phase Transitions
Paola Goatin 587

Solvability and Metastability of the Stochastic Optimal Velocity Model	
<i>Masahiro Kanai, Katsuhiko Nishinari, and Tetsuji Tokihiro</i>	595
Modeling of Flows with Power-Law Spectral Densities and Power-Law Distributions of Flow Intensities	
<i>Bronislovas Kaulakys, Miglius Alaburda, Vygintas Gontis, Tadas Meskauskas, and Julius Ruseckas</i>	603
Relationship Between Non-Markovian- and Drift-Fokker-Planck Equation	
<i>Knud Zabrocki, Svetlana Tatur, Steffen Trimper, and Reinhard Mahnke</i>	613
<hr/>	
Part VI Traffic Flow: Empirical Results and Applications	
<hr/>	
Accidents in Platoons of Vehicles	
<i>Cécile Appert-Rolland and Ludger Santen</i>	623
Jam-Avoiding Adaptive Cruise Control (ACC) and its Impact on Traffic Dynamics	
<i>Arne Kesting, Martin Treiber, Martin Schönhof, Florian Kranke, and Dirk Helbing</i>	633
Inter-Vehicle Communication on Freeways: Statistical Properties of Information Propagation in Ad-Hoc Networks	
<i>Martin Schönhof, Arne Kesting, Martin Treiber, and Dirk Helbing</i>	645
Effects of Advanced Traveller Information Systems on Agents' Behaviour in a Traffic Scenario	
<i>Thorsten Chmura, Johannes Kaiser, Thomas Pitz, Mark Blumberg, and Marco Brück</i>	657
Chaotic Traffic Flows on Two Single-Lane Crossroads Caused by Real-Time Traffic Information	
<i>Minoru Fukui, Katsuhiko Nishinari, Yasushi Yokoya, and Yoshihiro Ishibashi</i>	667
A Vehicle Detection and Tracking Approach Using Probe Vehicle LIDAR Data	
<i>Bin Gao and Benjamin Coifman</i>	675
Multi-Anticipative Car-Following Behavior: An Empirical Analysis	
<i>Serge P. Hoogendoorn, Saskia Ossen, and Marco Schreuder</i>	687

Statistical Analysis of Floating-Car Data: An Empirical Study
M. Ebrahim Fouladvand and Amir H. Darooneh 699

Scale-Free Features in the Observed Traffic Flow
Sin-ichi Tadaki, Macoto Kikuchi, Akihiro Nakayama, Katsuhiko Nishinari, Akihiro Shibata, Yuki Sugiyama, and Satoshi Yukawa 709

States of Traffic Flow in the Deep Lefortovo Tunnel (Moscow): Empirical Data
Ihor Lubashevsky, Cyril Garnisov, Reinhard Mahnke, Boris Lifshits, and Mikhail Pechersky 717

Granular Flow