

February 2007

Curriculum Vitae

for

Rupert Klein

Fregestr. 70, 12159 Berlin
Germany

born November 19, 1959
married

Academic Education

1979-85 Studies of Mechanical Engineering, Diploma Degree, RWTH Aachen
1988 Doctorate Degree in Mechanical Engineering, summa cum laude, RWTH Aachen
1995 Habilitation, Venia Legendi “Nonstationary Mechanics”, RWTH Aachen

Research Interests

- Singular Perturbation Theory, Asymptotics
- Asymptotically Adaptive Numerical Methods
- Geophysical Fluid Mechanics
- Combustion Gasdynamics
- Vortex Dynamics

Employment History

1985-88 Research Assistant, Institut für Technische Mechanik, RWTH Aachen, Prof. Norbert Peters
1988-90 DFG post-doctoral stipend at “Program in Applied and Computational Mathematics”, Princeton University, Prof. Andrew J. Majda
1991-96 Research Assistant (C1), Institut für Technische Mechanik, RWTH Aachen, Prof. Norbert Peters
1996-97 University Professorship (C3) “Methoden der Sicherheitstechnik / Unfallforschung”, Bergische Universität – GH Wuppertal
1997-... University Professorship (C4) “Scientific Computing / Modeling and Simulation of Global Environment Systems”, Mathematik & Informatik, Freie Universität Berlin &
Head of Data & Computation, Potsdam Institut für Klimafolgenforschung
2006-... Deputy director, Potsdam-Institute for Climate Impact Research

Research Visits

1990/91 Visiting Fellow, “Special Year on Turbulence” Mathematical Sciences Research Institute (MSRI), UC Berkeley (1 Month each year)

- 1992/93 Visiting Fellow, Courant Institute of Mathematical Sciences, NYU, (3 Months / 1 Month)
- 1994 Visiting Fellow, CNRS, Institut de Recherche sur les Phénomènes Hors Equilibre, Marseille, France, (3 Months)
- 1996 Visiting Fellow, Whiting School of Engineering, The Johns Hopkins University, Baltimore, MD, USA, (3 Months)
- 2002/03 Invited Professor, Mathematics Department, Ecole Normale Supérieure, Paris, France, (1 Month)

Ph.D. Students

- 1995 A.C. Berkenbosch, *Capturing Detonation Waves for the Reactive Euler Equations*, Dept. of Mathematics, Eindhoven University, (RK acted as external advisor)
- 1995 D. Kivotides, *High Speed Combustion Modes in Narrow Channels*, Dept. of Mechanical Engineering, RWTH Aachen, (RK acted as principal scientific advisor)
- 1996 M. Schmitz, *Axiale Entwicklung der Kernstruktur schlanker Wirbelfäden*, Dept. of Mechanical Engineering, RWTH Aachen, (RK acted as principal scientific advisor)
- 1996 V. Smiljanovski, *Ein numerisches Verfahren zur Berechnung schneller Vormischflammen und der Deflagrations-Detonations-Transition (DDT)*, Dept. of Mechanical Engineering, RWTH Aachen, (RK acted as principal scientific advisor)
- 1997 K.J. Geratz, *Erweiterung eines Godunov-Typ-Verfahrens für zwei-dimensionale kompressible Strömungen auf die Fächer kleiner und verschwindender Mach-Zahl*, Dept. of Mechanical Engineering, RWTH Aachen, (RK acted as principal scientific advisor)
- 1997 V. Moser, *Simulation der Explosion magerer Wasserstoff-Luft-Gemische in großskaligen Geometrien*, Dept. of Mechanical Engineering, RWTH Aachen, (RK acted as principal scientific advisor)
- 1997 M. Oevermann, *Ein Finite-Volumen-Verfahren auf unstrukturierten Dreiecksgittern zur Berechnung turbulenter Diffusionsflammen in kompressiblen Strömungen*, DLR-Institute for Theoretical Fluid Dynamics, Göttingen (RK acted as external advisor)
- 1998 P. Terhoeven, *Ein numerisches Verfahren zur Berechnung von Flammenfronten bei kleiner Mach-Zahl*, Dept. of Mechanical Engineering, RWTH Aachen (RK acted as principal scientific advisor)
- 2000 Th. Schneider, *Zur Flammenverfolgung in schwach kompressiblen reaktiven Strömungen*, Dept. of Mechanical Engineering, RWTH Aachen (RK acted as principal scientific advisor)
- 2002 H. Schmidt, *Ein verallgemeinertes Flammenverfolgungsverfahren für nicht-stationäre turbulente Flammenstrukturen*, Dept. of Mechanical Engineering, Duisburg University (RK acted as principal scientific advisor)
- 2004 M. Wrobel, *Multidimensionale, heterogene, visualisierbare Datenräume*, Dept. of Information Science, Freie Universität Berlin (RK acted as co-advisor)
- 2006 K. Eisenack, *Model ensembles for Natural Resource Management: Extensions of Qualitative Differential Equations using graph theory and viability theory*, FB Mathematik & Informatik, Freie Universität Berlin

2007 E. Mikusky, *Zur Struktur konzentrierter atmosphärischer Wirbel im Gradientenwind-Regime und deren Bewegung auf synoptischer Skala*, Fakultät für Mathematik, Informatik und Naturwissenschaften, Universität Hamburg (RK acted as principal scientific advisor)

Honors

1985/86 *Henry Ford II Studienpreis*, “Best grades in Mechanical Engineering at RWTH Aachen, 1985 & 86”

1990/91 *Arch T. Colwell Merit Award* and *Horning Memorial Award* for exceptional scientific publications, Society of Automotive Engineers (SAE)

1994 Guest professorship, IRPHE, Université de Aix Marseille (3 months)

1995 *Bennigsen-Foerder-Forschungspreis* of the state of Nordrhein-Westfalen, “Erosive Surface Damage under Engine Knock”

1995 *International Fellow Award (1995/96)*, Whiting School of Engineering, Johns Hopkins University, Baltimore, Maryland, USA

2002 *Leibniz-Preis*, Deutsche Forschungsgemeinschaft

2003/4 Guest professorship, Dept. Math. Appl., École Normale Supérieure, Paris (1 month)

2005 Elected as member of the “Berlin-Brandenburgische Akademie der Wissenschaften”

Other Academic Activities, Memberships

- Reviewer: SIAM Journal of Applied Mathematics, Journal of Engineering Mathematics, Journal of Computational Physics, Computers & Fluids, Journal of Fluid Mechanics, Physics of Fluids, Combustion & Flame, Combustion Theory & Modeling, Journal of Atmospheric Sciences
- Editorial Board: Computers & Fluids, SIAM Journal on Multiscale Modeling and Simulation (MMS), Theoretical and Computational Fluid Dynamics (TCFD), Communications in Applied Mathematics and Computational Science (electronic journal).
- Scientific Advisory Board: Deutsches Klimarechenzentrum (DKRZ)
- German national scientific advisory board for super computer infrastructure development
- Member of the Scientific Board: Mathematisches Forschungsinstitut Oberwolfach
- Scientific co-ordinator, Priority Research Programme “Scale-Transgressing Models in Fluid Dynamics and Meteorology” (SPP 1167, MetStröm), Deutsche Forschungsgemeinschaft