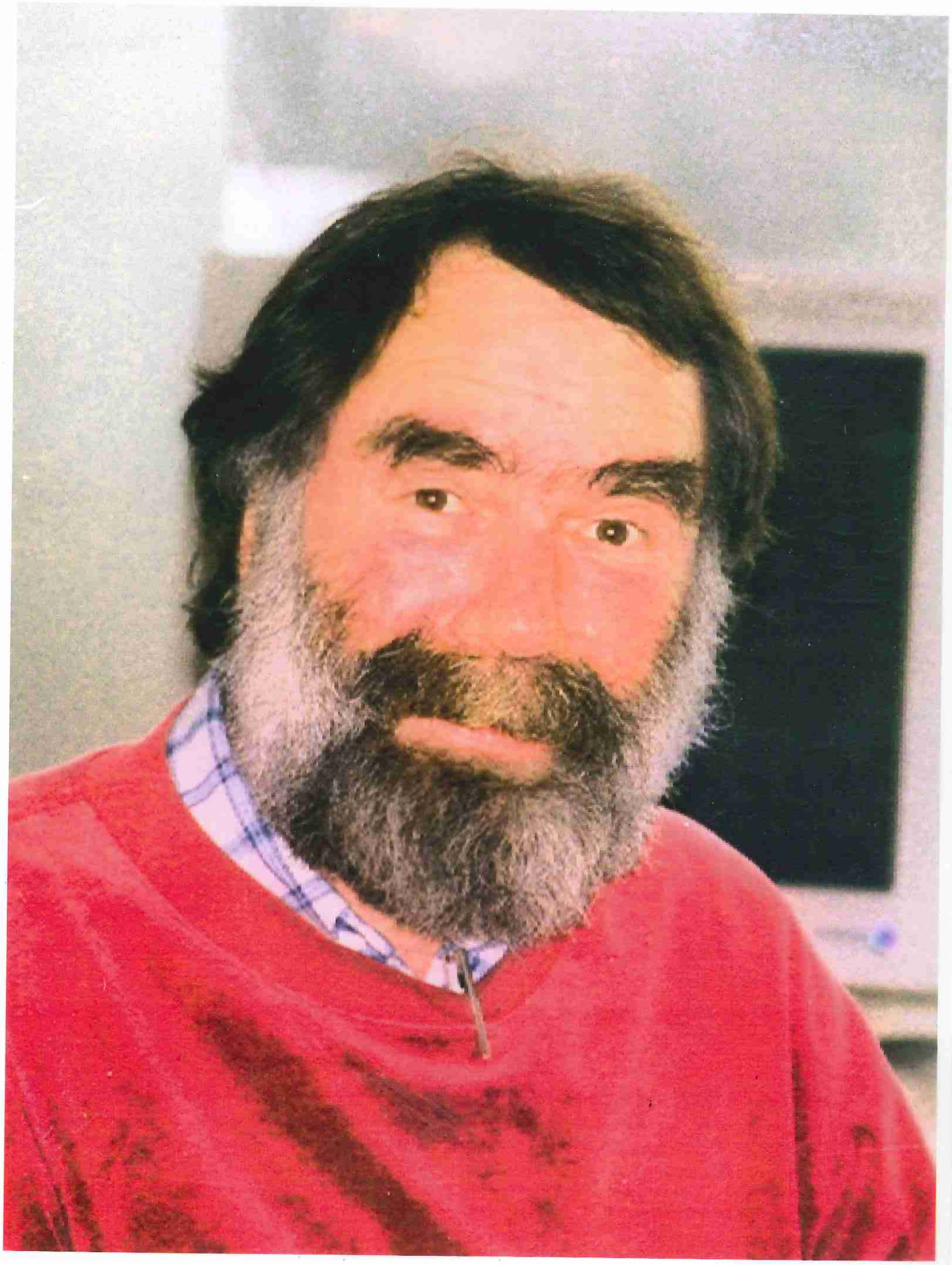

Arne Wunderlin

*1947 † 2012

Studied Physics University of Stuttgart
1966–1971

Diplom Thesis: Behandlung von elektronischen Kollektivanregungen im Festkörper mit Hilfe von Quasiwahrscheinlichkeiten

Promotion 1975: Über statistische Methoden und ihre Anwendung auf Gleichgewichts- und Nichtgleichgewichtssysteme

Habilitation 1986: Mathematische Methoden der Synergetik und ihre Anwendungen auf den Laser

1992 apl. Professor, Uni Stuttgart

SS 1995 Visit. Prof. Potsdam

Research areas of Arne Wunderlin

1) Solid state physics: new mathematical methods, superconductivity, far from equil.

2) Statistical physics: excitons of high density. Convection instability

3) Synergetics: nonlinear partial stochastic differential equations at instabilities, in particular: slaving principle

4) Delay differential equations: instabilities

5) Nonintegrable space-time-transformations propagators, Schrödinger-, Fokker-Planck equations

6) Theory of elasticity: general solution of incompatibility problem of 3-dim. linear anisotropic media

Lectures of Arne Wunderlin

Courses in Theoretical Physics

enormous help!

special courses: turbulence, synergetics, relativistic Q.F.T., light and matter, ...

Books

Die Selbststrukturierung der Materie
1990 (with H. H.)

edited
Evolution of dynamical structures in complex systems, 1992
(with Rudolf Friedrich)

Lasers and Synergetics, 1987
(with Robert Graham, H. H.)

married, 3 children

Rudolf Friedrich

* 1956 † 2012

Studied physics, University of Stuttgart
1975 – 1982

Diplom Thesis 1982: Höhere Instabilitäten beim Taylor Problem der Flüssigkeits-dynamik

Promotion 1986: stationäre, wellenartige und chaotische Konvektion in Geometrien mit Kugelsymmetrie

Habilitation 1992: Dynamische Strukturen in synergetischen Systemen

1999 apl. Professor, Uni Stuttgart

2001 Professor of Theoretical Physics (University of Münster)
Director of the Institute of Theoretical Physics

Research areas of Rudolf Friedrich

1) Fluid dynamics: Taylor instability
convection on spheres: oscillations, chaos
traveling waves; dynamo models,
rotating Bénard convection, ...

2) Pattern formation and pattern recognition

3) Brain research: phase transitions,
spatio-temporal analysis of
multi-channel alpha EEG map series
in particular: "Shilnikov Chaos"
MEG analysis

4) turbulence: Fokker-Planck-eqs.
spiral turbulence; statistics of
Lagrangian velocities
magnetic fields in turbulent fluids

5) anomalous transport, path-integrals
introduced fractional substantial
derivatives, time-series analysis

6) engineering:
effects of water jets on metal cutting,
...

Activities of Rudolf Friedrich

Courses in theoretical physics

since 2008 member "Dynamics and statistics" of DFG (German Science Foundation)

Speaker of Center for nonlinear science (University Münster)

member of board of german-Chinese „Sonderforschungsbereich Transregio 61"

Director of research Sonderforschungsbereich 458

member of Leibniz Sozietät

married, 3 children