

Mercator-Fellow
Illia Horenko

**Integrated Research
Training Group**

Managing Board
Speaker and Chairman of the Board
Rupert Klein

1st Deputy Speaker
Ralf Kornhuber

2nd Deputy Speaker
Christoph Schütte

Steering Group

**Management and
Coordination**

Research Areas

**A: Efficient modelling of
macro scales**

A01 - Coupling a multiscale stochastic precipitation model to large scale atmospheric flow dynamics (Ulbrich, Névir, Rust)

A02 - Multiscale data and asymptotic model assimilation for atmospheric flows (Reich, Klein)

A04 - Efficient calculation of slow and stationary scales in molecular dynamics (Noé, Weikl)

A05 - Probing scales in equilibrated systems by optimal nonequilibrium forcing (Schütte, Hartmann, Weber)

**B: Uniform meso scale behavior in
scaling cascades**

B01 - Fault networks and scaling properties of deformation accumulation (Kornhuber, Oncken, Rosenau, Mielke)

B02 - Polymer dynamic theories, Markov state models and protein folding free energy landscapes (Netz, Noe)

B03 - Multilevel coarse graining of multiscale problems (Schütte, Kornhuber, Kokschi)

B04 - Multiscale tensor decomposition methods for partial differential equations (Klein, Schneider, Yserentant)

B05 - Origin of the scaling cascades in protein dynamics (Keller, Hartmann, Imhof, Heyne)

**C: Bridging the micro-macro
scale range**

C01 - Adaptive coupling of scales in molecular dynamics and beyond to fluid dynamics (Delle Site, Klein)

C02 - Water diffusion at biological molecules and interfaces: Bridging stochastic and hydrodynamic descriptions (Netz)

C03 - Multiscale modelling and simulation for spatiotemporal master equations (Schütte, Noé)

C05 - Effective models for interfaces with many scales (Mielke)

C06 - Multi-scale structure of atmospheric vortices (Klein)

C08 - Stochastic spatial coagulation particle processes (König, Patterson)

AP: Associated Projects

AP01 - Particles in lipid bilayers (Kornhuber, Hartmann, Gräser)

CRC Members General Assembly