Lars Buntemeyer, PhD

Scientific Programmer

Personal Data

Address: Hamburg, Germany
Phone: +49 174 808 78 91
email: larsbuntemeyer@gmail.com

Key Skills

- Strong programming skills in Fortran, C/C++, Python and shell scripting (7 years)
- Proficient in parallel programming and high-performance computing
- Special expertise in numerical fluid dynamics and radiative transfer
- Further expertise in regional climate modelling and geophysical fluid dynamics
- Great team worker and excellent interpersonal skills

Work Experience

Current
since 11/2014

Scientific Programmer | **Climate Service Center**, Hamburg
Regional Climate Modelling
- Refactoring and optimization of a regional climate model
- Implementation of parallel IO with netcdf
- Implementation of non-hydrostatic extensions
- Running the model in the CORDEX initiative
- Support and maintenance of the code, documentation

05/2011-10/2014

PhD Student | **University of Hamburg**, Hamburg
Computational Astrophysics
- Implementation of radiative transfer algorithms for AMR fluid dynamics
- Running high-performance hydrodynamical simulations on star formation
- Tutor for undergraduate students
- Gained PhD in 10/2014 (magna cum laude)

Education

05/2011-10/2014

PhD in Computational Astrophysics | **University of Hamburg**, Hamburg
Grade *"magna cum laude" (1,3)* | Topic: Massive Star Formation
Thesis: "Characteristics based Radiative Transfer for Parallel Adaptive Mesh Refinement Hydrodynamics"

10/2004-09/2009

Diploma in Physics | **University of Hamburg**, Hamburg
Grade *"excellent" (1,3)* | Major: Computational Physics | Minor: Computer Science
Thesis: "3D Radiative Transfer in Radial Velocity Fields"

08/2002-07/2004

Diploma in "Media Design" | **Das Werk**, Hamburg
Trainee in Video and Audio Engineering | Grade *"good" (1,7)*

06/1999

Abitur | **Gymnasium Ganderkesee**, Ganderkesee
Grade *"good" (2,0)* | General Qualification for University Entrance

Publications

Buntemeyer, L., Banerjee, R., Peters, T., Klassen, M., Pudritz, R., Feb. 2016. Radiation Hydrodynamics using Characteristics on Adaptive Decomposed Domains for Massively Parallel Star Formation Simulations. New Astronomy 43, 49-69.

Klassen, M., Kuiper, R., Pudritz, R. E., Peters, T., Banerjee, R., Buntemeyer, L., Dec. 2014. A General Hybrid Radiation Transport Scheme for Star Formation Simulations on an Adaptive Grid. Astrophysical Journal 797, 4.

Seminars & Talks

October 2013 — **Dust Radiative Transfer 2013 - Codes & Benchmarks** | Workshop
Title of Talk: *"3D Radiation Transfer Modeling with FLASH"*
Grenoble | France

April 2013 — **StarBench - Benchmarking Star Formation Codes** | Workshop
Title of Talk: *"Radiation Hydrodynamics wiht FLASH - The Hybrid-Characteristics Method"*
Exceter | UK

October 2012 — **The Physics of the Interstellar Medium** | ISM-SPP Summer School
Title of Talk: *"Multi-Resolution Radiative Transfer"*
Munich | Germany

September 2012 — **International Max-Planck Research School**
Title: *"Computational Astrophysics - Physical Foundations & Numerical Techniques"*
Attending Lectures on Computational Fluid Dynamics,
Magneto-Hydrodynamics and Radiative Transfer
Heidelberg | Germany

October 2008 — **Byurakan International Summer School**
Title of Talk: *"Radiation Transfer in Stellar Atmospheres"*
Byurakan | Armenia

Computer Skills

Professional Knowledge: Fortran (modular programming), MPI, OpenMP, NetCDF IO, C++ (OOP), Linux/Unix, IDL, Python, GIT, SVN, Latex

Languages

German: Mothertongue
English: Fluent
French: Basic Knowledge

Interests and Activities

Sports, Playing the Piano, Travelling