

Lars Buntemeyer, PhD

Scientific Programmer

CONTACT INFO

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WORK EXPERIENCE

- | | |
|---------------------------------|---|
| <i>Current</i>
SINCE 11/2014 | Scientific Programmer Climate Service Center, Hamburg
<i>Regional Climate Modelling</i>
I am currently working at the Climate Service Center in the field of regional climate modelling. My work includes refactoring the model REMO (Fortran) which requires the implementation of modern programming standards, parallel IO and a non-hydrostatic dynamical core. I am also responsible for porting the model to a new Intel high-performance computing facility at the German Climate Computing Center (DKRZ) in Hamburg which includes running the model on the European region of the international CORDEX initiative. Additionally, I support other scientists in using REMO, writing a documentation and maintaining the code via version control (SVN).
Refactoring and optimization of REMO Implementation of parallel IO and non-hydrostatic solver Testing the model in the CORDEX initiative Support and maintenance of the code Code documentation |
| 05/2011-10/2014 | PhD Student University of Hamburg, Hamburg
<i>Computational Astrophysics</i>
I did my PhD in the physics department in the field of computational astrophysics. My main research interest was in the development and implementation of numerical techniques for massively parallel high-performance 3D fluid dynamics and radiative transfer algorithms for the simulation of molecular cloud evolution and massive star formation.
Implementation of novel numerical algorithms Running high-performance hydrodynamical simulations Tutor for undergraduate students Gained PhD in 05/2014 (magna cum laude) |
| 02/2006-02/2007 | Media Engineer Norddeutscher Rundfunk (NDR), Hamburg
The NDR is based in Hamburg and is the main broadcasting company in Northern Germany. I worked at the NDR in addition to my studies. |
| 02/2006-02/2007 | Software Developer Optix Digital Pictures, Hamburg
Optix is based in Hamburg, Toronto and Dubai and provides the whole workflow of digital image post-production. I worked at Optix Digital in Hamburg additionally to my studies. |

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 Trainee "Mediengestalter Bild & Ton" | **Das Werk**, Hamburg
Trainee in Video and Audio Engineering | Grade *"good"* (1,7)
- 06/1999 Abitur | **Gynnasium Ganderkesee**, Ganderkesee
Grade *"good"* (2,0) | General Qualification for University Entrance

PUBLICATIONS

Buntemeyer, L., Banerjee, R., Peters, T., Klassen, M., Pudritz, R., May 2015. Radiation Hydrodynamics using Characteristics on Adaptive Decomposed Domains for Massively Parallel Star Formation Simulations. Accepted for publication in *New Astronomy*. 10.1016/j.newast.2015.07.002.

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 with FLASH - The Hybrid-Characteristics Method"*
Exeter | 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

INTERNS

SUMMER 2007 Student Research Project | University of Hamburg
Student research project at the Institute for Applied Physics at the University of Hamburg
| Working in the research group for surface science physics.

04/2000-10/2001 Intern | BLM FILMPRODUCTION GMBH, Hamburg
blm is a facility offering the whole service that is necessary to produce a motion picture,
especially commercials (including pre-production, production and post production).

LANGUAGES

GERMAN: Mothertongue
ENGLISH: Fluent
FRENCH: Basic Knowledge

COMPUTER SKILLS

Professional Knowledge: Fortran, C++(OOP), Linux/Unix, IDL, Python

INTERESTS AND ACTIVITIES

Sports, Playing the Piano, Travelling