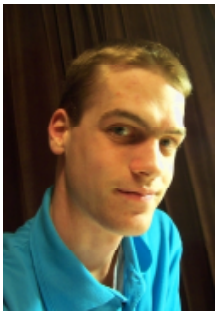
Curriculum Vitae



Pascal Stephan Philipp Steger

Contact Information

Pascal S.P. Steger
Waldstr. 16
8132 Egg / ZH
Switzerland
077 434 30 53
psteger@phys.ethz.ch

Career Objective

I apply for a PhD position in theoretical astrophysics at ETH Zürich. After two years of research on numerical simulations of DM/baryonic physics of galaxy clusters I would like to contribute to a better understanding of dark matter in the real Universe. My aim is to broaden knowledge on how dark matter influences galaxy dynamics in groups or single galaxies.

Education

- 2009-2010: studies MSc Physics ETH Zürich, ZH; finished January 2011
- 2005-2009: BSc Physics ETH Zürich, ZH
- 2002-2005: Literargymnasium Rämibühl, ZH, profile Greek & Latin,
  Award "Best of the year"
- 1998-2002: Bezirksschule Aarau, AG
  Award "Best of the year"

Employment Experience

- 2008-2009: Extended Semesterarbeit at Institute for Astronomy, ETH Zürich, ZH
  development of analysis program package for SPH simulations
- 2006-2007: Typesetting of electro- and thermodynamics manuscripts with LaTeX

Volunteer Experience / Community Involvement

- 2008-2009: Military education to officer's degree, Dübendorf, ZH
  Award for best overall performance & best comrade
- July 2005: Participation in International Physics Olympiad in Salamanca
  Honourable Mention, Best of Switzerland

Related Skills

- C++, Java, SpASM, MATLAB, MATHEMATICA, IDL (basics), LaTeX, PHP, HTML
- experience with several Linux/Windows operating systems
- working knowledge of ETH supercomputer environment
- languages: German (maternal), English (fluid), French, Russian, Latin, Greek

Interests / Extra-curricular Activities

- January 2005: construction of Dobson telescope with new mounting concept
- September 2005: SPHAIR pilot training camp, proposal for military pilot
- member of "Белые Ночи", Russian Choir of Zürich
- member of "Kantonale Offiziersgesellschaft Zürich"
- member of "Verein Ehemaliger des Mittelschulorchesters Rämibühl", accounter

Relevant Research Experience

I am interested in extragalactic structures and their interplay with galaxy structure formation. My research so far is concentrating on correlations between dark matter, gas and stars in galaxy clusters, based on hydrodynamical simulations.

For my Bachelor thesis I used cosmological simulations of three individual galaxy clusters embedded in a cosmological box. The simulations were performed using the tree-SPH+N-body code GADGET-2 and include subgrid models for cooling, star formation and stellar feedback. Three galaxy clusters were resimulated and evolved until z=0, where the analysis is performed.

Most of the effort was put in developing a set of programs dubbed "AMATEUR" which enables reading and transformation of the datasets, includes AHF's halo finder, runs extractions of various properties of the DM/gaseous/stellar component of each halo, determines the halo/subhalo tree, and calculates the tidal field at a desired smoothing scale.

My Master thesis will be concerned with the influence of the cluster environment on infalling satellites. Not only the response of the shape and spin of the DM/gaseous/stellar components to the cluster tidal field is measured, also the hydrodynamic aspect will be investigated. The respective influences of tides and hydrodynamical forces on the reorientation of angular momentum and the change of shape of the gaseous/stellar components are investigated. Another major aspect will be to verify consistency between AMR and SPH in this context.

References

- Prof. Dr. C.M. Carollo, Institute for Astronomy, ETH Zürich
  Supervisor BSc and MSc thesis; `marcella@phys.ethz.ch`
- Dr. O. Hahn, Kavli Institute for Particle Astrophysics and Cosmology, Stanford
  Supervisor BSc and MSc thesis; `ohahn@stanford.edu`
- Prof. Dr. J. Blatter, Institute for Theoretical Physics, ETH Zürich
  Employer LaTeX scripting; `blatterj@itp.phys.ethz.ch`

Attachments

- Academic transcripts for BSc ETH Physics
- Certificate in Advanced English
- Honourable Mention, International Physics Olympiad