APPLICANT'S CURICULUM VITAE

CONTACT

Name: Kateřina Bartošková

Email: katka.bartoskova@gmail.com

Office: (06)03010, ÚTFA, Kotlářská 2, 611 37 Brno

Telephone: 00420/602 861 661

PERSONAL INFORMATION

Address: Bednaříkova 1, Brno, 628 00, Czech Republic

Place and date of Birth: Brno, 24. 3. 1985

DISCIPLINE AND A START DATE OF DOCTORAL STUDIES

Discipline: Theoretical Physics and Astrophysics

Date of admission: 28. 7. 2010

Date of registration: 28. 7. 2010 (Term: 1, Year: 1)

POSITIONS

PhD study at Department of Theoretical Physics and Astrophysics, Faculty of Science, Masaryk University Kotlářská 2, 611 37 Brno, CR

Astronomical Institute of the Academy of Sciences of the Czech Republic, v.v.i., section Praha, Boční II 1401, 141 31 Praha 4, CR (25% duty for a period 1.10.2010-30.9.2011)

EDUCATION AND QUALIFICATION FOR ADDRESSING THE PROPOSED PROJECT

2010 – Present: Doctoral study programme: Theoretical Physics and Astrophysics, Faculty of Science, Masaryk University

June 2010: Master degree obtained in programme Theoretical Physics and Astrophysics (Spec.: Astrophysics), Faculty of Science, Masaryk University

2006 – Present: Expansion of specialization – courses on Faculty of Informatics, Masaryk University: Introduction to the C language; C++ Programming; Digital Image Processing; UNIX; UNIX – Programming and System Management I–II

November 2007: Bachelor degree obtained in programme: Applied Physics (Spec.: Astrophysics), Faculty of Science, Masaryk University

2000 – 2004: Secondary school: Gymnázium Čechyňská 19, Brno

BASIC QUALIFICATION FOR THE PROPOSED PROJECT:

Familiarity and practical experience with galaxy modeling and gravitational N-body simulations of galaxy mergers (since Master thesis project); passing courses of galaxy astronomy and dynamics; programming skills; working on topics related to elliptical galaxies since the bachelor thesis project. (See the following sections fo details).

WORK EXPERIENCE, INTERSHIPS, SOLVED PROJECTS

September 2010: Participation in conference JENAM 2010[1], Lisbon, Portugal, 6.-10.9. 2010;

Academic year 2009/2010: Master thesis: *Self-consistent simulations of elliptical galaxies*
Supervisor: Mgr. Filip Hroch, Ph.D.; Successfully defended in June 2010 (grade A).

- Theoretical study of different widely-used one and two-component galactic models (stellar and dark matter distinction).
- Experience with usage and configuration of a comprehensive toolbox for self-consistent N-body simulations – GADGET-2 (Springel, 2005).
- Numerical realization of different galactic models using Monte Carlo method.
- Testing of proper treatment of theoretically stable galactic models in N-body simulations.
- Preparation and realization of serial simulations of a minor merger system (head-on collision of a giant elliptical galaxy with a dwarf elliptical galaxy), that leads to successfully reproduction of a stellar shell system – the observed phenomenon in many elliptical galaxies.

Since 2009: Co-investigator of a successful scientific proposal for observing time: Stoklasová, I. (PI); Jungwiert, B.; Bartáková, T.; Bartošková, K.; Ebrová, I.; *VIMOS IFU Spectroscopy of SDSS Binary Quasar Candidates: Spatially Resolved Kinematics* [2].

Since 2009: Member of the informal Prague-Brno working group on AGN host galaxies, lead by Dr. Bruno Jungwiert (Astronomical Institute ASCR, supervisor of the proposed project) and including one post-doc, 4 PhD students and 2 diploma students from Masaryk University in Brno and Charles University in Prague;

- Within this group: collaboration on N-body modeling of shell galaxies (i. e. comparison of fully self-consistent treatment, using GADGET-2, with semi-analitical test-particle simulation; see the list of publications) and a on a successful observational proposal on ESO[3]/VLT (mentioned above).

April 2008: Acting as Invited speaker at IWSSP 2008[4] – exercise for undergraduate students, organized to help them in their future scientific practice; invited talk: *Elliptical Galaxies*

Summer 2007: Translation activities: *SharePoint 2007: Users Guide*, publisher Zoner Press

October 2006: Participation in IBWS 2006 (5th Integral Bart Work Shop), The Vlašim observatory, Czech Republic, 25.-28.10. 2006

Academic year 2006/2007: Bachelor thesis: *Surface photometry of elliptical galaxies*
Supervisor: Mgr. Filip Hroch, Ph.D.; Successfully defended in June 2007 (grade A).

- Experience with image processing and photometry of CCD images of elliptical galaxies (data obtained from several observatories including Hubble Space Telescope): Programs in C language using CFITSIO library interface, fitting of 2D ellipse structure.

[1] Joint European and National Astronomy Meeting (JENAM 2010); Presentation of the results from the master thesis and consequential analysis on poster session during the symposium 2: Environment and the Formation of Galaxies: 30 years later.
http://www.jenam2010.org/index.php?option=com_frontpage&Itemid=1

[2] 3D spectroscopy of 5 SDSS binary quasar candidates at redshifts $z < 0.07$ with the IFU of VIMOS instument on VLT (The Very Large Telescope); Status (sept. 2010): The proposal has been accepted and all spectroscopic observations were successfully conducted. Currently the project is in data analysis phase.

[3] ESO (www.eso.org) is an intergovernmental organization for astronomical research, involving 14 European countries, and operating the largest astronomical telescopes in the world; the Czech Republic is member since 2007

[4] International Workshop on Stellar System Physics: http://astro.physics.muni.cz/iwssp2008

AWARDS AND RESULTS OF RESEARCH ACTIVITIES – PUBLICATIONS

Bartošková, K.; Jungwiert, B.; Ebrová, I.; Jílková, L.; Křížek, M.:
Simulations of shell galaxies with GADGET-2: Multi-generation shell systems; Poster presented at the conference JENAM 2010[1], Lisbon, Portugal, Sept. 2010

Ebrová, I.; Bartošková, K.; Jungwiert, B.; Jílková, L.; Křížek, M.;
New Approaches to Simulating the Formation of Shell Galaxies; Poster presented at the conference JENAM 2010[1], Lisbon, Portugal, Sept. 2010

Ebrová, I.; Jílková, L.; Jungwiert, B.; Bartošková, K.; Křížek, M.; Bartáková, T.; Stoklasová, I.;
Quadruple-peaked Line-of-sight Velocity Distributions in Shell Galaxies. Poster presented at the conference JENAM 2010[1], Lisbon, Portugal, Sept. 2010

Jílková, L.; Jungwiert, B.; Křížek, M.; Ebrová, I.; Stoklasová, I.; Bartáková, T.; Bartošková, K.;
Simulations of Line Profile Structure in Shell Galaxies. Astronomical Society of the Pacific Conference Series (ASPC). 423, 243. 2010, arXiv:0908.2962

OTHER RELEVANT INFORMATION

OTHER SKILLS AND QUALIFICATIONS

- Language skills: English (Advanced), Russian (Basic knowledge)
- Knowledge of OS Linux, user knowledge of OS Windows XP
- Programming languages: C, C++, Fortran
- Command interpreters and script languages: Bash, Awk, Octave, GNU Gnuplot, LaTeX, Matlab
- Knowledge of CCD photometry and image processing theory
- Experience with usage and programming FITS and HDF5 standard formats

CHARACTER SKILLS

Ability to work in team, desire to learn new things, flexibility, hardworking, responsibility

INTERESTS

Astrophysics, programming, opensource, travelling, technical and science literature

REFERENCES

SUPERVISOR OF PHD THESIS: RNDr. Bruno Jungwiert, Ph.D.

Astronomical Institute of the Academy of Sciences of the Czech Republic, v.v.i.,
Boční II 1401, 141 31 Praha 4
Contact: bruno@ig.cas.cz

SUPERVISOR OF BACHELOR AND DIPLOMA THESES: Mgr. Filip Hroch, Ph.D.,

assistant professor, Department of Theoretical Physics and Astrophysics,
Faculty of Science, Masaryk University, Kotlářská 2, 611 37 Brno
Contact: hroch@physics.muni.cz, tel. 549494470

Brno,
September 27, 2010