

Dr Audrey TROVA

Born: May 15, 1988

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RESEARCH EXPERIENCE

Mai 2017 - Now **Post-doctoral position** at ZARM - Center of Applied Space Technology and Microgravity - University of Bremen

Mar 2014 - Jan 2017 **Post-doctoral position** in the relativistic group in Astronomical Institute of the Academy of Sciences, Prague, Czech Republic

Dec 2013 - Feb 2014 **Invited researcher** by Pr V.Karas in Astronomical Institute of the Academy of Sciences, Prague, Czech Republic

2010 - 2013 **PhD in Astrophysics** in LAB, Bordeaux, France
(defense on Nov 14th 2013, advisors F.Hersant and J-M.Huré, thesis jury: Dr A.Dutrey, Dr F.Hersant, Pr J-M.Huré, Pr W.Kley, Pr D.Pfenniger. and Pr M.Rieutord)

Gravity in vertically homogeneous systems: applications to astrophysical discs

- Modeling rotating fluids (Fortran)
- Potential theory (Theoretical and formal calculus; elliptic integrals)

March - June 2010 **Internship (Master Degree)** in LAB, Bordeaux, France

Local prescription for the softening length in self-gravitating disc models

- Theoretical calculus
- Programming (Maple)

TEACHING EXPERIENCE

Teaching and practicals:

- Introduction to general relativity (Master, University of Bremen, 2017-2018)
- Fluid mechanics (30 Hrs, Licence 1, Université de Bordeaux, 2012),
- Physics & Chemistry (High School level, Mars-April 2017)

PUBLICATIONS

2017 « **Self-gravitating fluid tori with charge** »
Karas, V., Trova, A., Kovář, J., in AAS/High Energy Astrophysics Division #16, vol. 16 of AAS/High Energy Astrophysics Division, Aug. 2017, p. 109.11

2017 « **Influence of self-gravity on the equilibrium structures of magnetized tori** »
Trova, A., Karas, V., Slaný, P., and Kovář, J. (2017). In IAU Symposium, volume 324 of IAU Symposium, pages 253– 254.

2016 « **Electrically charged matter in permanent rotation around magnetized black hole: a toy-model for self-gravitating fluid tori** »
A.Trova, V.Karas, J. Kovář, P. Slaný, 2016, ApJS, 226, 12

- 2016 **« Charged perfect fluid tori in strong central gravitational and dipolar magnetic fields »**
J. Kovář, P. Slaný, C. Cremaschini, Z. Stuchlík, V. Karas and A. Trova, accepted, Phys. Rev. D 93, 124055
- 2015 **« Equilibrium of self-gravitating tori in spherical gravitational and dipolar magnetic field »**
Trova, A., Karas, V., Slaný, P., and Kovář, J. (2015). Equilibrium of self-gravitating tori in spherical gravitational and dipolar magnetic fields. In Martins, F., Boissier, S., Buat, V., Cambrésy, L., and Petit, P., editors, SF2A-2015 : Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics , pages 179–182.
- 2015 **« A truly Newtonian softening length for disc simulations »**
J.-M. Huré, A. Trova, MNRAS, 447 :1866–1872.
- 2014 **« Electrically charged matter in rigid rotation around magnetized black hole »**
J. Kovář, P. Slaný, C. Cremaschini, Z. Stuchlík, V. Karas and A. Trova, Phys. Rev. D, 90(4) :044029.
- 2014 **« Self-gravity in curved mesh elements »**
J.-M. Huré, A. Trova and F. Hersant, 2014, Celestial Mechanics & Dyn. Astr.
- 2014 **« Self-gravity in thin discs and edge effects : an extension of Paczynski's approximation »**
A. Trova, F. Hersant and J.-M. Huré, A&A, 563:A132, March 2014.
- 2013 **« Gravity in vertically homogeneous systems: applications to astrophysical discs »**
Phd thesis
- 2012 **« The potential of discs from a 'mean Green function's »**
A. Trova, J.-M. Huré and F. Hersant, 2012 MNRAS, 424, 2635
- 2012 **« Approximate solution for the gravitational potential of thin disks »**
Trova, A., Huré, J.-M., and Hersant, F., in Boissier, S., de Laverny, P., Nardetto, N., Samadi, R., Valls-Gabaud, D., and Wozniak, H., editors, SF2A-2012 : Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, pages 159–162.
- 2011 **« The gravitational potential of axially symmetric bodies from a regularized green kernel »**
Trova, A., Huré, J.-M., and Hersant, F., in Alecian, G., Belkacem, K., Samadi, R., and Valls-Gabaud, D., editors, SF2A-2011 : Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, pages 685–688.

CONFERENCES CONTRIBUTIONS

- 2017 Poster **Equilibrium structures of fluid charged tori around a compact object in rotation**
29th International Texas Symposium on Relativistic Astrophysics, December 3-9, Cape Town, South Africa

- 2016 Oral ***Influence of self-gravity on equilibrium figures of gaseous tori***
Models of Gravity - Black Holes, Neutron Stars and the structure of space-time, October 4-7, Oldenburg, Germany
- 2016 Poster ***Equilibrium configurations of rotating magnetized self-gravitating tori: influence of self-gravity***
IAU Symposium: New frontiers in black hole astrophysics, September 12-16, Ljubljana, Slovenia
- 2015 Oral ***Self-gravitating charged tori embedded in spherical gravitational and dipolar magnetic field***
SF2A (National meeting), June 2-5, Toulouse, France
- 2014 Poster ***New prescription for the softening length in discs simulations***
Planet Formation and Evolution, sept. 8-10, Kiel, Germany
- 2014 Oral ***Self-gravity in thin discs : extension of Paczynski's approximation***
11th INTEGRAL/BART Workshop,
april 22 - 25 2014, Karlovy Vary, Czech Republic
- 2013 Oral ***Vertical self-gravity in discs and outer edge effects***
Accreting Relativistic Compact Objects and their Environment,
november 22 - December 1 2013, Prague, Czech Republic
- 2013 Oral ***The softening length in 3D Self-gravitating fluids***
Gravasco, Dynamics & Kinetic theory of self-gravitating systems:
International Workshop, november 4-8, Paris, France
- 2012 Poster ***Two useful formulae for thin disc models with self-gravity***
Planet Formation and Evolution, sept. 3-7, Munich, Germany
- 2012 Oral ***Approximate solution for the gravitationnal potential of thin discs***
SF2A (National meeting), June 5-8, Nice, France
- 2011 Poster ***A new expression for the Newtonian potential of vertically homogeneous discs***
IPF (local meeting), Dec. 19, Bordeaux, France
- 2011 Poster ***A general solution of the Poisson and Laplace equations for homogeneous, ϕ -invariant celestial bodies from a line, kernel-regularized integral***
SF2A (National meeting), June 20-23, Paris, France

EDUCATION

- 2013 ***PhD Degree : Astrophysics***
Université de Bordeaux - Bordeaux, France
- 2010 ***Master Degree (with distinction): Astrophysics***
Université Bordeaux 1 - Bordeaux, France

ADMINISTRATIVE ACTIVITIES & POPULARIZING SCIENCE

Council Member:

- LAB (Laboratoire d'Astrophysique de Bordeaux)
- OASU (Observatoire Aquitaine des Sciences de l'Univers)

Scientific Events:

- Opening day of Laboratoire d'Astrophysique de Bordeaux
- Conference talk for Société Astronomique de Bordeaux (SAB)