

# Jenny Sorce

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CNES Research Fellow

Languages: French & English & Italian: fluent  
German: fair Japanese & Spanish: basic notions

## Research Activity

- 2018 – tdy **CNES Research Fellow**, ‘Centre de Recherche Astrophysique de Lyon’ (CRAL), France.  
Main interest: *Numerical, Theoretical & Observational interface* ; To overcome biases inflicted by our location in the Universe.
- 2016 – tdy **Guest Researcher**, ‘Leibniz-Institut für Astrophysik’ (AIP), Potsdam, Germany.
- 2016 – 2017 **Postdoctoral Researcher**, ‘Observatoire Astronomique de Strasbourg’, France.  
Main interest: *Numerical & Observational* ; (zoom-in hydrodynamical) constrained (with observational data) simulations of the local Universe and its constituents, comparisons observations/simulations.
- 2014 – 2016 **Humboldt Research Fellow**, Leibniz-Institut für Astrophysik, Potsdam, Germany.  
Main interest: *Numerical* ; Building constrained (with observational data) initial conditions, running simulations, follow the formation and evolution of the Large Scale Structure in the Local Universe.
- 2011 – 2014 **Long term research stays**, Universities of Lyon/Potsdam/Hawaii (France/Germany/USA).  
Main interest: *Observational* ; Measurement of galaxy surface photometry, calibration of the Tully-Fisher relation in the Mid-Infrared, estimates of galaxy distances and peculiar velocities.
- 2011 – 2018 **Summer Schools**.
- MUSE summer school -Lyon, France (Jul. 2018)
  - Euclid summer school - Fréjus, France (Jul., 2017) & Narbonne, France (Aug., 2016)
  - International Young Astronomers: Herschel & Planck data - Sèvres, Paris (selection, Apr. 2013)
  - Statistics in Autrans, France (May 2012)
  - Technics & observations, Kavli - Peking, China (**unique non-chinese successful candidate**, Oct. 2011)
- 2009 – 2011 **Internships**.
- Institute for Astronomy - Hawaii, USA: galaxy surface photometry (Apr.-Jul. 2011) with Pr. B. Tully
  - IfA - Hawaii, USA: galaxy spectrophotometry (May-Jul. 2010) with Pr. R. Gal & Pr. L. Kewley
  - Joliot Curie, Lyon, France: programming to follow cells (Jun.-Jul. 2009) with Dr. G. Charvin

## Education and Diplomas

- 2011 – 2014 **PhD in Astrophysics, Cosmology with the Highest Honors (Magna Cum Laude)**,  
Defense June 12th Universities of Lyon/Potsdam (France/Germany), Advisors: Pr. M. Steinmetz, Dr. H. Courtois ; President:  
Pr. C. Augier ; Reviewers: Pr. C. Porciani, Pr. G. Yepes ; Other examiners: Pr. B. Tully, Dr. S. Gottlöber.  
From Spitzer Observations and Measurements of Peculiar Velocities to Constrained Simulations of the Local Universe
- 2011 **ENS Lyon additional diploma**, France ; high criteria: *mobility, language and interdisciplinarity*.
- 2009 – 2011 **Master’s degree, honors in (Astro)Physics (top 10 %)**, Ecole Normale Supérieure de Lyon (ENS Lyon), leading French scientific institution, entrance exams.
- 2008 – 2009 **Bachelor of Science in Physics, honors**, ENS Lyon, France.
- 2005 – 2008 **Post secondary classes: preparing for entrance to the ‘Grandes Ecoles’ & Baccalauréat**  
(~ High School Diploma) scientific, highest honors, Lyon & Bourgoin, France.

## Prizes, Grants and Computer time

- Since 2005 **Prizes/Awards**.
- ~ 31.2k€
- Award ‘l’Oreal-UNESCO, for women in science’, 20 k€ (2017)
  - Young researcher’s **prize** of Lyon city, 5.4 k€ (2016)
  - 66th Lindau Nobel Laureate Meeting, selected and fully funded (2016), 5 k€ (2016)
  - Scientific vocation **prize**, Department in charge of the equality between women & men, 800 € (2005)

Since 2006 **Grants.**

- ~334.3 k€
- CRAL incentive actions **collaboration** grant, 2 k€ (2018)
- LIA Origins France-China **collaboration** grant, 2.5 k€ (2018)
- CNES independent postdoctoral **research** fellowship, ~55 k€ (2017 – 2019)
- Juan de la Cierva independent postdoctoral **research** fellowship, ~50 k€ (2017, declined)
- Humboldt independent postdoctoral **research** fellowship, ~84 k€ (2014 – 2016)
- **Ph.D. grant**, Department of the higher education and scientific research, ~102 k€ (2011 – 2014)
- **Explora’doc** (x1), **Mobility** (x1) grants, Rhône-Alpes County, ~4.4 k€ (2013)
- **Explora’sup** grants (x2) Rhône-Alpes County, ~3.4 k€ (2009 – 2011)
- **Merit Scholarship**, Department of National Education, ~31 k€ (2006 – 2011)

Since 2015 **Computer time.**

- 144.8m
- 144.8m cpu/h
- **PI** of the ‘Light on the Virgo cluster’ project at LRZ, 22.3m cpu-hours (2016 – tdy)
- Co-I of the ‘HESTIA’ project at LRZ, 30m cpu-hours, PI: N. Libeskind (2017 – tdy)
- **Co-PI** of the Gauss project ‘SLOW dancing galaxies’, 86m cpu-hours, Co-PI: K. Dolag (2016 – tdy)
- Co-I of the ‘local cosmic rays’ project on JURECA, 0.8m cpu-hours, PI: F. Vazza (2016 – 2017)
- Co-I of the ‘JUBILEE’ project on JURECA, 3.7m cpu-hours, PI: S. Gottlöber & I. Iliev (2015 – 2016)
- Co-I of the ‘Universe’s Structures’ project on JURECA, 2m cpu-hours, PI: S. Gottlöber (2015 – 2016)

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## Teaching and Supervision Activities

Since 2012 **Supervision.**

- **3 one-year-Bachelor-Thesis** (since 2016)
- **High School Students’ Training**, Lyon, France (since 2012, each April)

2010 – 2014 **Teaching.**

- Computer Science (2<sup>nd</sup> year of Medical School & Bachelor), 8h & 30h, Lyon (2013 – 2014)
- Science of the Universe (Bachelor), 123h, Lyon (2011 – 2013)
- Mathematical refresher courses to undergraduate students, 12h (2011 – 2012)
- Private and in a learning center lessons in Science (pre-Baccalaureat), > 300h, Lyon (2010 – 2011)

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## Responsibilities and Scientific Mediation

Since 2004 **Scientific Mediation: more than 10 types of actions, 4 countries.**

- **Benevolent vice president** of ‘UPBS’: association proposing science to high school students, **leader of the organization & supervision of the ‘astroweek’ + participation to & organization of the ‘Congress’** every year (since 2012 - vice president since 2018)
- **General Public Conference** for junior school students - Lyon, France (Jan. 2018, Dec. 2018)
- **Open house** at Lyon Observatory - France (Jun. 2018)
- **Presentation** of the researcher’s job and research to high/junior school students - Lyon (Mar. 2018) Strasbourg (Oct. 2017 & Dec. 2017), France
- **Presentation** at the conference ‘Generation young researchers’ - Paris, France (Oct. 2017)
- **Invitation** to the ‘Dialogs in Humanities’ - Lyon, France (Jul. 2017)
- Face-to-face and phone **interviews** for French journals (e.g. ‘Ciel & Espace’) & radios (since Mar. 2017)
- **Building of images & movies** (e.g. internet public platforms) (2016)
- **Co-panelist of Nobel Laureate Brian Schmidt**, Falling Walls - Berlin, Germany (Nov. 2015)
- **Presentation** at the Science Slam of the Leibniz Association Forum - Berlin, Germany (Nov. 2015)
- **General Public Conferences** - science fairs, open houses - France (Oct., Jun., May & Mar. 2013)
- **Open house** at the Institute For Astronomy - University of Hawaii, USA (Apr. 2011)
- **Scientific camp counselor**, Health assistant, in charge of travels, England/France (Summers, 2004–09)

## Since 2011 Responsibilities.

- **Seminar organization** for the CRAL - Lyon, France ([since](#) Oct. 2018)
- **Co-chair of the EHC** for the EWASS meeting - Lyon, France (Jun. 2018 - Jun. 2019 with telecon and meeting attendance). Main responsibilities:
  - **in charge of contacting and meeting** local and regional bodies for mediation event planning ([since](#) Jun. 2018)
  - **in charge of developing** mediation events ([since](#) Jun. 2018)
- **LOC & SOC** of the Ramses Users meeting - Lyon, France (Sep. 2018)
- **LOC** at the Alsatian X-Rays meeting - Strasbourg, France (Nov. 2017)
- **Chair of a complete day session** at the Cosmology School in Fuerteventura, Spain (Sep. 2017)
- **Member of the 4MOST consortia** ([since](#) 2016, cosmology and survey strategy & simulation groups with telecon & meeting attendance). Main responsibilities:
  - Involved in **developing algorithms** related to target selection & fiber assignment ([since](#) Jun. 2018)
  - Involved in **developing algorithms** related to the construction of the cosmology survey target catalog ([since](#) May 2017)
  - **Runs of simulations** to determine target exposure times and observed areas for the cosmology survey ([since](#) May 2017)
  - **Lead** of a discussion on the cadence of observations + short **written report** (Jun. 2018)
  - **Written report** of sprint 4 (Jun. 2018)
  - **Lead** of sprint 4 for the observational strategy: tiling, exposure time and contiguous areas - organization of telecons, questions & gathering of responses (Apr. to Jun. 2018)
- **Member of the Euclid consortia** ([since](#) 2014, galaxy clustering and simulation groups with telecon & meeting attendance). Main responsibilities:
  - **Euclid Consortium Diversity Committee board** ([since](#) May 2018)
  - **in charge of determining the local-induced bias effects** ([since](#) Jan. 2018)
- **Member of the ASTERICS project**, affiliated to the DADI workpackage: Virtual Observatory schools, feedbacks to improve the CDS virtual tools (SIMBAD, Aladin, Vizier, etc [since](#) 2016). Main responsibilities:
  - **Tutor at the Virtual Observatory schools** in Spain (Nov. 2017) and in France (Nov. 2016)
  - **Tutor at the Cosmology schools** in Poland, Spain and France (Jul., Sep., Jan, 2017)
  - **Update and templates of the tutorials** and the Euro-VO webpage (Jan. 2017 – Dec. 2017)
  - **Written report** of the 2<sup>nd</sup> Virtual Observatory school (Dec. 2016)
- **Member of the International Astronomical Union** (IAU, [since](#) 2018)
- **Member of the astronomical and astrophysical French society** (SF2A, [since](#) 2016)
- **Referee** for MNRAS, ApJ ([since](#) 2014)
- **TICE, project with innovative teaching methods**, development of an interactive website (2013–2014)
- **Junior member of the American Astronomical Society** (AAS, 2012 – 2014)
- **preparation of exams** in Science of the Universe (2011 – 2013)

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## Publications: 33 publications (30 rank A), 671 citations (as of 12/26/2018)

- 2018 30. Cui, Knebe, Yepes, Pearce, Power, Dave, Arth, Borgani, Dolag, Elahi, Mostoghiu, Murante, Rasia, Stoppacher, Vega-Ferrero, Wang, Yang, Benson, Cora, Croton, Sinha, Stevens, Vega-Martínez, Arthur, Baldi, Cañas, Cialone, Cunnama, De Petris, Durando, Ettori, Gottlöber, Nuza, Old, Pilipenko, **Sorce**, Welker, *The Three Hundred project: a large catalogue of theoretically modelled galaxy clusters for cosmological and astrophysical applications*, MNRAS, 480, 2898, citations: 2.
- 2018 29. Tempel, Kruuse, Kipper, Tuvikene, **Sorce**, Stoica, *Bayesian group finder based on marked point processes*, A&A, 618, A81.
- 2018 16. 28. **Sorce**, *Galaxy clusters in local Universe simulations: a long uphill struggle*, MNRAS, 478, 5199.
- 2018 27. Hoffman, Carlesi, Pomarède, Tully, Courtois, Gottlöber, Libeskind, **Sorce**, Yepes, *The quasi-linear nearby Universe*, Nature Astronomy, 2, 680, citations: 2.
- 2018 15. 26. **Sorce** & Tempel, *Galaxy clusters in simulations of the local Universe: a matter of constraints*, MNRAS, 476, 4362, citations: 2.
- 2018 25. Olchanski & **Sorce**, *Merger types forming the Virgo cluster in recent gigayears*, A&A, 614, A102.

- 2018 24. Hackstein, Vazza, Brüggén, **Sorce**, Gottlöber, *Simulations of ultra-high Energy Cosmic Rays in the local Universe and the origin of Cosmic Magnetic Fields*, MNRAS, 475, 2519, citations: 12.
- 2018 3. 3. **Sorce**, Dolag, Pilipenko, Gottlöber, *Our Cosmic Home in a box: SLOW dancing galaxies*, High Performance Computing in Science and Engineering - Garching/Munich, 2017.
- 2018 2. 2. **Sorce**, Blaizot, Dubois, Gottlöber, *Light on the Virgo cluster of galaxies: our closest cluster-neighbor*, High Performance Computing in Science and Engineering - Garching/Munich, 2017.
- 2017 14. 23. **Sorce**, Colless, Kraan-Korteweg, Gottlöber, *Predicting Structures in the Zone of Avoidance*, MNRAS, 471, 3087, citations: 3.
- 2017 13. 22. **Sorce** & Tempel, *How does the Grouping Scheme affect the Wiener Filter reconstruction of the local Universe?*, MNRAS, 469, 2859, citations: 6.
- 2017 12. 21. **Sorce**, Hoffman, Gottlöber, *Toward an optimal sampling of peculiar velocity surveys for Wiener Filter reconstructions*, MNRAS, 468, 1812, citations: 6.
- 2017 1. 1. **Sorce**, *Simulating the local Universe*, proceeding SF2A 2016.
- 2017 20. Carlesi, Hoffman, **Sorce**, Gottlöber, *Constraining the mass of the Local Group*, MNRAS, 465, 4886, citations: 4.
- 2016 11. 19. **Sorce**, Gottlöber, Hoffman, Yepes, *How did the Virgo cluster form?*, MNRAS, 460, 2015, cit.: 10.
- 2016 18. Tully, Courtois, **Sorce**, *Cosmicflows-3*, ApJ, 152,50, citations: 72.
- 2016 17. Carlesi, Hoffman, **Sorce**, Gottlöber, Yepes, Courtois, Tully, *The tangential velocity of M31: CLUES from constrained simulations*, MNRAS letter, 460L, 5, citations: 8.
- 2016 10. 16. **Sorce** & Guo, *The Baryonic Tully-Fisher Relation cares about the Galaxy Sample*, MNRAS, 458, 2667, citations: 7.
- 2016 15. Pahwa, Libeskind, Tempel, Hoffman, Tully, Courtois, Gottlöber, Steinmetz, **Sorce**, *The alignment of galaxy spin with the shear field in observations*, MNRAS, 457, 695, citations: 17.
- 2016 14. Carlesi, **Sorce**, Hoffman, Gottlöber, Yepes, Libeskind, Pilipenko, Knebe, Courtois, Tully, Steinmetz, *Constrained Local UniversE Simulations: A Local Group Factory*, MNRAS, 458, 900, citations: 12.
- 2016 9. 13. **Sorce**, Creasey, Libeskind, *Properties of Galaxies in the Disk Central Surface Brightness Gap*, MNRAS, 455, 2644, citations: 2.
- 2016 8. 12. **Sorce**, Gottlöber, Yepes, Hoffman, Courtois, Steinmetz, Tully, Pomarède, Carlesi, *Cosmicflows Constrained Local UniversE Simulations*, MNRAS, 455, 2078, citations: 29.
- 2015 7. 11. **Sorce**, *Minimization of Biases in Galaxy Peculiar Velocity Catalogs*, MNRAS, 450, 2644, cit.: 15.
- 2015 10. Courtois, Zaritsky, **Sorce**, Pomarède, *Giant disk galaxies : Where environment trumps mass in galaxy evolution*, MNRAS, 448, 1767, citations: 11.
- 2014 6. 9. **Sorce**, Tully, Courtois, Jarrett, Neill, Shaya, *From Spitzer Galaxy Photometry to TF Distances*, MNRAS, 444, 527, citations: 52.
- 2014 8. Neill, Seibert, Tully, Courtois, **Sorce**, Jarrett, Scowcroft, Masci, *The Calibration of the WISE W1 and W2 TFR*, ApJ, 792, 129, citations: 19.
- 2014 7. Zaritsky, Courtois, Muñoz-Mateos, **Sorce**, Erroz-Ferrer, Comerón, Gadotti, Gil de Paz, Hinz, Laurikainen, Kim, Laine, Menéndez-Delmeestre, Mizusawa, Regan, Salo, Seibert, Sheth, Athanasoulas, Bosma, Cisternas, Ho, Holwerda, *The Baryonic TFR for S<sup>4</sup>G Galaxies and the Baryon Fraction of Central Galaxies*, ApJ, 147, 134, citations: 39.
- 2014 5. 6. **Sorce**, Courtois, Gottlöber, Hoffman, Tully,, *Simulations of the Local Universe constrained by observational peculiar velocities*, MNRAS, 437, 3586, citations: 33.
- 2013 5. Tully, Courtois, Dolphin, Fisher, Heraudeau, Jacobs, Karachentsev, Makarov, Makarova, Mitronova, Rizzi, Shaya, **Sorce**, Wu, *Cosmicflows-2: The Data*, AJ, 146, 86, citations: 215.
- 2013 4. 4. **Sorce**, Courtois, Sheth, Tully, *Bimodality of Galaxy Disk Central Surface Brightness Distribution [at 3.6  $\mu$ m]*, MNRAS, 433, 751, citations: 4.

- 2013 **3.** 3. **Source**, Courtois, Tully, Seibert, Scowcroft, Freedman, Madore, Persson, Monson, Rigby, *Calibration of the Mid-IR Tully-Fisher relation (TFR)*, ApJ, 765, 94, citations: 34.
- 2012 **2.** 2. **Source**, Tully, Courtois, *Mid-Infrared TFR: Calibration of the SNIA scale*, ApJ, 758, L12, cit.: 32.
- 2012 **1.** 1. **Source**, Courtois, Tully, *Mid-Infrared TFR: Spitzer Surface Photometry*, AJ, 144, 133, cit.: 24.

• All papers: *h-index* 12

• As first author: *h-index* 8.

## Oral Communications

Since 2011 **Colloquia: 23 seminars, 15 institutes, 8 countries.**

- Shanghai Astronomical Observatory (SHAO), Shanghai - China (Oct. 2018)
- Centre de Recherche Astrophysique de Lyon (CRAL) - Lyon, France (Sep. 2018, Sep. 2015, Sep. 2014)
- University College London (UCL) - London, UK (Jun. 2018)
- Centre de physique des particules (CPPM) - Marseille, France (Dec. 2017)
- Max-Planck-Institut für extraterrestrische Physik (MPE) - Garching, Germany (Jun. 2017)
- Leibniz-Institut für Astrophysik (AIP) - Potsdam, Germany (Feb. 2017, March 2015, Jul. 2013)
- Observatoire Astronomique de Strasbourg, France (Dec. 2016)
- Institut de Physique Nucléaire (IPNL) - Lyon, France (Dec. 2015, Oct. 2013)
- Andres Bello University, Santiago - Chile (Dec. 2015)
- National University of Córdoba - Argentina (Nov. 2015)
- AIP for the Scientific Advisory Board - Potsdam, Germany (Oct. 2015)
- Racah Institute of Physics - Jerusalem, Israel (Feb. 2015)
- Institut d'Astrophysique de Paris (IAP) - Paris, France (Sep. 2014, Nov. 2012)
- Laboratoire de Physique Nucléaire et des Hautes Energies (LPNHE) - Paris, France (Sep. 2014)
- IfA - University of Hawaii, USA (Jan. 2014, Jun. 2011)
- Carnegie Observatories - Pasadena, USA (Jan. 2013)

Since 2012 **Conferences: 31 talks, 5 posters, 25 cities, 14 countries.**

- Talk & poster - CNES Young researchers' days - Toulouse, France (Oct. 2018)
- Talk - Conference 'Highlights & prospects for numerical astrophysics' - Lyon, France (Oct. 2018)
- Talk - Conference 'the Large Scale properties of the Universe' - Tuorla, Finland (Oct. 2018)
- Talk - Ramses Users Meeting (RUM) - Lyon, France (Sep. 2018), Paris, France (Oct. 2016), Oxford, UK (Sep. 2015)
- Talk - SF2A - Bordeaux, France (Jul. 2018), Lyon, France (Jun. 2016)
- Talk - 4MOST meeting - Sauverny, Switzerland (Jun. 2018)
- item Talk - CLUES meeting - Tenerife, Spain (Jun. 2018), Madrid, Spain (Jun. 2017), Haifa, Israel (Jun. 2016), Copenhagen, Denmark (x2, May 2015), Potsdam, Germany (Aug. 2014), Madrid, Spain (May 2013), Lyon, France (Jun. 2012)
- Talk - French galaxy clustering meeting - attendance via telecon (Jun. 2018)
- **Invited Review** and poster - Cosmology school - Fuerteventura, Canary Islands, Spain (Sep. 2017)
- Talk - Crystal Clear Clusters workshop - Madrid, Spain (Jun. 2017)
- Talk (x2) - IVOA meeting - Shanghai, China (May 2017)
- Talk - Conference 'Large Scale Structure and Galaxy Flows' - Quy Nhon, Vietnam (Jul. 2016)
- **Invited Review** - Unveiling the Anisotropic Universe workshop - Amsterdam, Netherlands (Apr. 2016)
- Talk - Near Field Cosmology workshop - Obergurgl, Austria (Mar. 2016)
- Poster - Conference 'Theoretical and Observational progress on the LSS' - Garching, Germany (Jul. 2015)
- Talk - Conference 'Drifting through the Cosmic Web' - Aix-en-provence, France (Jul. 2015)
- Poster - Humboldt foundation meeting - Bremen, Germany (Apr. 2015)
- Talk - Hydrosim meeting - Trieste, Italy (Feb. 2015)
- Dissertation talk - 223 rd AAS meeting - National Harbor, USA (Jan. 2014)
- Talk and Poster - Conference 'Cosmic Flows' - Marseille, France (Jun. 2013)
- Talk - 221st AAS meeting - Long Beach, USA (Jan. 2013)
- Talk - Tully-Fisher at 35 Workshop - Green Bank, USA (Apr. 2012)

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## Other attended conferences/workshops & Visited institutes abroad

Since 2012 **Conferences/workshops: 14 other conferences, 11 cities, 6 countries.**

- **Euclid galaxy clustering meeting** - Milan, Italy (Dec. 2018), Nice, France (Feb. 2018)
- **Euclid France** conference - Nice, France (Nov. 2018), Lyon, France (Dec. 2014)
- **4MOST meeting** - Heidelberg, Germany (Sep. 2018), Lyon, France (Sep. 2017)
- **CNES Young researchers' days** - Toulouse, France (Mar. 2018)
- **4MOST meeting** - Lyon, France (Sep. 2017)
- **Euclid annual meeting** - London, UK (Jun. 2017), Lisbon, Portugal (May-Jun. 2016), Lausanne, Switzerland (Jun. 2015)
- **Third ASTERICS DADI Technology Forum** - Strasbourg, France (Mar. 2017)
- **66th Lindau Nobel Laureate Meeting** - Lindau, Germany (Jun.-Jul. 2016)
- **Workshop Paris-Meudon** - Paris, France (Dec. 2012)
- **Conference 'Neutrinos at the forefront of elementary particle physics and astrophysics'** - Lyon, France (Oct. 2012)

Since 2010 **Visited (for more than a day in a row) institutes (outside France, besides conferences): 11 institutes, 7 countries, total: about 3.6 years.**

- Shanghai Astronomical Observatory, Shanghai - China (1 week, Oct-Nov. 2018)
- Leibniz-Institut für Astrophysik, Potsdam - Germany (guest researcher, 1 month + 2 weeks, since 2017)
- University of Geneva - Switzerland (2 days, Jul. 2017)
- Max-Planck-Institut für extraterrestrische Physik (MPE) - Garching, Germany (1 week, May-Jun. 2017)
- Leibniz-Institut für Astrophysik, Potsdam - Germany (postdoc, **2 years**, between 2014 and 2016)
- Instituto de Fisica de Cantabria - Santander, Spain (1 week, Jan. 2016)
- Andres Bello University, Santiago - Chile (1 week, Dec. 2015)
- National University of Córdoba - Argentina (1 week, Nov. 2015)
- Racah Institute of Physics - Jerusalem, Israel (1 week, Feb. 2015)
- Universidad Autonoma de Madrid - Spain (1/2 week, Oct. 2014)
- Leibniz-Institut für Astrophysik, Potsdam - Germany (PhD, about **6 months**, between 2012 and 2014)
- Institute For Astronomy (IfA) - University of Hawaii, USA (total: **9 months**, between 2010 and 2014)
- Carnegie Observatories - Pasadena, USA (1 week, Jan. 2013)
- National Radio Astronomy Observatory - Charlottesville, USA (2 days, Apr. 2012)

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## Facilities and Supercomputers

CCIN2P3 in Lyon, LRZ and JURECA in Germany, OLCF in the USA

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## References (Alphabetical order)

- Dr. Mark Allen (CDS - Strasbourg, France)
- Pr. Dr. Corinne Augier (IPNL - Lyon, France)
- Dr. Jérémy Blaizot (CRAL - Lyon, France)
- Pr. Dr. Matthew Colless (ANU - Canberra, Australia)
- Dr. Stefan Gottlöber (AIP - Potsdam, Germany)
- Pr. Dr. Quan Guo (SHAO - Shanghai, China)
- Pr. Dr. Yehuda Hoffman (Hebrew University - Jerusalem, Israel)
- Dr. Johan Richard (CRAL - Lyon, France)
- Pr. Dr. Matthias Steinmetz (AIP - Potsdam, Germany)
- Pr. Dr. Elmo Tempel (Tartu Observatory - Tõravere, Estonia)
- Pr. Dr. R. Brent Tully (IfA - Hawaii, USA)
- Pr. Dr. Gustavo Yepes (UAM - Madrid, Spain)