

## Curriculum Vitae: Richard Laurence Smart

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### University Education Record

Doctor of Philosophy, 1993 University of Florida  
 Master of Science, 1990 University of Florida  
 Bachelor of Science, II-I, 1986 Preston Polytechnic  
 Equipollenza di laurea in Astronomia, 1998 Università degli studi di Padova

### Employment History

- 01/2006-today Oss. Astrofisico di Torino - Technological Researcher III level
- 03/2001-01/2006 Oss. Astronomico di Torino - Tecnico scientifico
- 04/2000-03/2001 Collaboration Contract, OATo GSC2 Coordinator
- 03/1999-03/2000 Temporary Contract, OATo Tecnico scientifico
- 01/1998-03/1999 Collaboration Contract, OATo GSC2 Research Scientist
- 04/1996-12/1997 Borsa Post-doc, Univesità di Torino - Studi di Astrometria
- 10/1994-06/1996 Royal Society Fellow at OATo - Parallax Studies.
- 06/1994-10/1994 Postdoctoral Grant STScI - Study of Galactic Kinematics.
- 01/1994-06/1994 Research Contract STScI - Joint Ultraviolet Nightsky Observer Project
- 09/1993-01/1994 Long Term Visitor STScI - Plate Reduction Techniques
- 09/1991-06/1993 Researcher Univ. of Florida - Orion Association studies
- 09/1990-09/1991 State Representative Univ. of Florida - Faculty Union.
- 01/1990-09/1990 Researcher Univ. of Florida - CCD Reduction Procedures.
- 09/1987-01/1990 Astronomy Laboratory Instructor, Univ. of Florida.

### Professional responsibilities, courses and memberships

- Supervisor and Co-supervisor of several master and doctoral thesis
- Referee for various astronomical journals (AJ, AA, etc)
- Examiner in various concorsi at OATo
- Commission member for the automation of the OATo Telescope for Astrometry and Photometry (OTAP) and responsible for the programming of the observations with this telescope.
- Organizer and contributor to several outreach activities: the astronomy olympics; the CD-Rom *The Making of GSC II*; the program *Meet a Researcher* at the Torino Planetarium.
- PI and Co-I of various EU funded projects: PARSEC Incoming Fellowship, IPERCOOL Staff Exchange Scheme, GENIUS Space Program
- Local coordinator or collaboraor on various national and local scientific projects PRIN CIWS, contract to ASI for GAIA, contract for EUCLID to TASI, contract to ESO-ESF for GSC II.
- Local organizer for monthly group presentation meetings
- Begining Java course in OATo 2010
- Interferometry and Space Astronomy course in L'Aquila 2008
- Member Società Astronomica Italiana, International Astronomical Union
- Ex-Member Royal Astronomical Society, American Astronomical Society

### Grants and Awards

- 2016: Leverhulme Visiting Professor University of Hertfordshire.
- 2015: Recipient AAS Chrétien International Research Award to work at CalTech with D. Kirkpatrick.
- 2015: GREAT short visit grant to work at Univ. of Madrid with L. Sarro.
- 2015: GREAT short visit grant to host F. Marocco, Univ. of Herfordshire.
- 2014: Local grant to host R. Mendez, Univ. of Chile.
- 2014: GREAT short visit grant to host L. Smith, Univ. of Herfordshire.

- 2014: GREAT grant for meeting “Gaia and the Unseen - The Brown Dwarf Question.”
- 2014/2015: Contract EUCLID with Alenia TASI, P.I. A. Spagna OATo
- 2013/2016: Coordinator Italy GENIUS EU FP7 Space grant, P.I. X. Luri Univ. Barcelona
- 2013: GREAT short visit grant to work at Univ. of Herfordshire with H.R.A. Jones.
- 2011/2013: Coordinator OATo for PRIN Customizable Instrument Workstation Software P.I. M. Tri-foglio IASF-Bo
- 2010/2012: P.I. The Substellar IMF, TNG Very Large Program
- 2010/2014: P.I. IPERCOOL EU FP7 Staff Exchange Scheme OATo-UH-SHAO-ON
- 2009/2011: P.I. PARSEC EU FP7 International Incoming Fellowship for A. Andrei
- 2007/2009: Royal Society International Joint Project with Univ. of Herfordshire
- 2006/2007: Internal OATo grant to host Dr A. Andrei (ON,Brazil) at OATo
- 2005: Visitors grant for summer collaboration at the Univ. of Hertfordshire
- 2002: INAF/STScI Development/production grant for the CD-Rom 'The making of GSC II'
- 2000/2001: Invited summer scientist with B. McLean STScI
- 1999: Collaboration grant with H.R.A. Jones, John Moores Univ.
- 1999: Collaboration grant with M. Rapaport, Observatoire de Bordeaux
- 1997: GNA, invitation grant for H.K.Eichhorn, Univ. of Florida
- 1995: Sigma Xi, OB Star summer research program with A. Howell, Univ. of Texas
- 1995, Australian Study Award for OB star radial velocity observations on the UK Schmidt.
- 1994/1996, Royal Society Fellowship to undertake a Parallax program at Torino Observatory.
- 1994: AAS and IAU, Travel Grant.
- 1994: NASA, P.I.: L. G. Taff, study of galactic kinematics in collaboration with M. G. Lattanzi.
- 1994: NASA, P.I.: C. Martin, JUNO definition study in collaboration with M. Shara
- 1993: STScI LTVP, Analysis of reduction techniques in collaboration with L. G. Taff.
- 1993: AAS and UF Division of Sponsored Research Travel Grant.
- 1992/1994: NERDC-IBM computer resources, P.I.:H.K.Eichhorn, Overlap software development.
- 1992: UF-Administration, UF Observatory Director.
- 1992: Sigma Xi, Univ. of Minneapolis plate scanning in collaboration with R. Humphreys.
- 1991: Sigma Xi grant in aid of research, Univ. of Virginia observations with P. Ianna.
- 1991: UF Division of Sponsored Research, P.I.: H. K. Eichhorn, Orion association study.
- 1990: Florida Space Grant Consortium, P.I.: J. P. Oliver, Analysis of CCD reduction procedures.

### Observing Experience

- P.I. ESO NTT 3.5m - SOFI infrared astrometry and spectroscopy
- P.I. UKIRT 4.0m - WFCAM infrared astrometry and photometry
- P.I. TNG 3.58m - NICS/DOLORES infrared astrometry and photometry
- P.I. Calar Alto 3.5m - OMEGACAM infrared astrometry and photometry
- P.I. ESO 2.2m - WFI optical astrometry and photometry
- P.I. Torino Observatory 1.05m - ASTROMED optical astrometry and photometry
- P.I. McCormick Observatory 26" - Photographic astrometry
- P.I. UK Schmidt 1.5m - 6DF multifibre spectroscopy for radial velocities
- P.I. William Herschel Telescope 4.0m - LRS multislit spectroscopy for low resolution classification
- P.I. Loiano Observatory 1.5m - Imaging for Villinus photometry
- Co.I. Gemini 8.0m - GINRS spectroscopy and photometry
- Co.I. Spitzer Space Telescope - IRAC spectroscopy and astrometry
- Co.I. SOAR 4-0m - ORSIS spectroscopy and photometry
- Co.I. VLT 8.2m - XSHOOTER spectroscopy
- Co.I. VLT 8.2m - ISSAC photometry
- Co.I. Hubble Space Telescope - WFC3 spectroscopy and imaging
- Co.I. GTC 10.4m - CanariCam Imaging
- Co.I. Liverpool Robotic Telescope 2.2m - RATCAM optical photometry and spectroscopy
- Co.I. Jacobus Kapteyn Telescope 1.0m - Wde field photographic astrometry
- Co.I. Rosemary Hill Observatory 30" - CCD and photographic imaging

## Scientific Interests

**Studies of low mass objects:** I work with many different researchers in the systematic study of low mass objects using varied observational datasets. The scientific goals are the determination of the sub-stellar mass function, testing brown dwarf “weather” and atmospheric theories, searching for benchmark and peculiar objects, exploiting low mass objects for studying the galaxy and calibration of absolute magnitudes. I coordinated two EU grants: one for Prof. A. Andrei from the Brazilian National Observatory (2010-2012 EU FP7 PARSEC Incoming Fellowship) and one for the exchange of researchers between OATo, Univ. of Hertfordshire, Shanghai Astronomical Observatory, and the Brazilian National Observatory (2011-2014 EU FP7 IPERCOOL Staff Exchange Scheme).

In this research my main expertise is the determination of parallaxes in particular:

- PI program PARSEC ‘PARallaxes of Southern Extremely Cool objects’ observing with Brazilian & ESO time using the Wide Field Imager on the ESO 2.2m to study 140 L and early T dwarfs.
- PI “large” program NPARSEC ‘NTT PARallaxes of Southern Extremely Cool objects’ with 96 nights observing 80 late T objects.
- PI program ‘New Parallaxes of Extremely Cool Brown Dwarfs’ using WFCAM on UKIRT for follow-up of 30 late T dwarfs discovered in the UKIDSS.
- PI of TOPP ‘Torino Observatory Parallax Program’ using the 1.05m telescope onsite at OATo to determine parallaxes of over 100 red and white dwarfs.
- Co-I of the program ‘Parallaxes with a Robotic Telescope: A Pilot Programme’ using the RATCam instrument on the 2.2m Liverpool Robotic Telescope for the study of more than 30 L and T dwarfs.
- Co-I of the Spitzer Program “Trigonometric Parallaxes of the Solar Neighborhood’s Coldest Brown Dwarfs” with 140hrs on the IRAC instrument to study 40 T and Y dwarfs

I also P.I./Co-Ied programs for determining photometry and spectroscopy:

- PI Very Large Program “The brown dwarf mass function” with more than 60 nights on the TNG for followup and selection of candidates for spectroscopy on GEMINI and Suburau.
- Co-I of a SOAR program for spectroscopic and photometric observations of brown dwarf candidates.

**Gaia:** is a mission of the European Space Agency scheduled for 2013 which will measure distance, proper motions, color and variability of 1% of the stars in the Galaxy. I cover the following roles:

- work-package manager GWP-S-335-12000: Attitude Star Catalogue;
- work-package manager GWP-S-335-11000: Initial Gaia Source List;
- co-manager for the Ground Based Optical Tracking (GBOT) team;
- representative of CU3 for the Ground-Based Observations for Gaia (GBOG) working group
- member of the Astrometric Verification Unit that will independently verify the astrometric reductions;
- collaborator in the building of a QSO catalog for the Gaia reference system;
- collaborator on the GAREQ experiment;
- collaborator on the characterization of the sky for the simulation and the definition of on-board detection by GSC2.3.
- Italian Coordinator for the EU Space Grant Genius.

**The Second Guide Star Catalogue:** is a catalog of positions, proper motions, color and classification of more than a billion celestial objects, collaboration between OATo and STScI. I have been involved in many aspects of its implementation:

- OATo ‘Research Scientist’ with particular reference to astrometry, proper motions, classifications and comparisons with other catalogs.
- Production of data for projects approved by the Consiglio per la Ricerca Astronomica (ex CRA).
- Co-ordinator of ‘The making of GSC II’: a CD-ROM informative, multimedia and interactive, distributed throughout the world.
- Development of a database with the raw data of GSC II and other catalogs for quality assurance and scientific exploitation
- Supplier for the ASI Science Data Center of the GSC II database for scientific exploitation

Finally I am part of a collaboration for the observation of exo-solar planets APACHE (A PATHway towards the Characterization of Habitable Earths) using photometry at the Astronomical Observatory of the Autonomous Region of Aosta Valley and on the confirmation of rocky planets from the Keck Planet Search using TNG and HARPS.