

C. V. of Valentina D'ODORICO

- **Present Position:** Staff Researcher at INAF - Trieste Astronomical Observatory since December 2008
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EDUCATION

- Oct. 29, 1999 **PhD in astrophysics** International School for Advanced Studies (SISSA/ISAS) Trieste (Italy)
Thesis: *Quasar Absorption Spectra: Probes of the Baryonic Gas at High Redshift*
- June 16, 1995 **Laurea degree in Physics cum laude** University of Padua (Italy)
Thesis: *Cosmological Implications of the Lyman α forest studies*

ACADEMIC POSITIONS

- **July 2006 - June 2008** Post-doc fellow at the Trieste Astronomical Observatory, research project *The intergalactic medium as a probe of cosmological investigation*. Supervisor: Prof. Stefano Cristiani.
- **February 2004 - June 2006** INAF post-doc fellow at the Trieste Observatory, research project *Galactic structures at high redshift and their influence on the intergalactic medium*. Supervisor: Prof. Stefano Cristiani.
- **April 2003 - January 2004** Post-doc fellow at the International School for Advanced Studies (SISSA-ISAS) of Trieste, research project *High redshift radio quasar*. Supervisors: Prof. Annalisa Celotti and Prof. Luigi Danese.
- **March 2002 - February 2003** Post-doc fellow at the Trieste Astronomical Observatory, research project *Spectroscopic study of stars and other cosmological objects at low metallicity*. Supervisor: Prof. Paolo Molaro.
- **March 2000 - February 2002** Marie Curie post-doc fellow at the Institut d'Astrophysique de Paris (France), in the context of the European programme *Improving the Human Research Potential & the Socio-economic Knowledge Base*. Supervisor: Prof. Patrick Petitjean.
- **November 1999 - February 2000** Post-doc fellow at the Trieste Astronomical Observatory, research project *Chemical abundances; Cosmology; Chemical evolution; Planetary nebulae; Nucleosynthesis; Halo stars; Supernovae*. Supervisor: Prof. Paolo Molaro.

GRANTS and FUNDED RESEARCH PROJECTS

Note: PRIN (Research Projects of National Interests) are the research grants assigned every year by the Italian National Institute of Astrophysics (INAF) and by the Italian Ministry of Research and University (MIUR).

- **PRIN MIUR 2012** "Evolution of cosmic baryons: astrophysical effects and cosmic growth", P.I. Prof. Stefano Borgani (Coordinator of WP Observations of the high-redshift IGM)
- **PRIN INAF 2012** "The X-Shooter sample of 100 quasar spectra at $z \sim 3.5$: Digging into cosmology and galaxy evolution with quasar absorption lines", P.I. Dr. Valentina D'Odorico
- **PRIN INAF 2010** "The 1 Billion Year Old Universe: Probing Primordial Galaxies and the Intergalactic Medium at the Edge of Reionization", P.I. Dr. Valentina D'Odorico

- **PRIN MIUR 2009** “Tracing the growth of structures in the Universe: from the high-redshift cosmic web to galaxy clusters”, P.I. Prof. Stefano Borgani
- **PRIN MIUR 2007** “Diffuse baryons across cosmic epochs”, P.I. Prof. Stefano Borgani
- **PRIN INAF 2006** “The metallicity evolution through the cosmic ages”, P.I. Dr. Roberto Maiolino.
- **PRIN INAF 2005** “Ultra-deep multi-wavelength surveys to constrain galaxy formation scenarios”, P.I. Prof. Stefano Cristiani.
- **PRIN Cofin 2002** “Nucleosynthesis in the early Universe: from primordial nucleosynthesis to first stars”, P.I. Prof. Paolo Molaro.
- **Cofin INAF 2002** “Cosmological evolution of galaxies and their active nuclei”, P.I. Prof. Stefano Cristiani.
- **Funding ASI 2001** “HST observations: the connection between galaxies and the inter-galactic medium”, P.I. Prof. Stefano Cristiani.
- **Marie Curie Fellowship 2000-2002** at the Institut d’Astrophysique de Paris (France)

TEACHING and SUPERVISING ACTIVITY

- Lectures on “QSO absorption lines” for the PhD students at the Scuola Normale Superiore in Pisa (2015)
- Co-supervisor of the PhD thesis of Chiara Mongardi (Trieste University, started 2014)
- Co-supervisor of the PhD thesis of Serena Perrotta (SISSA, started 2013)
- Lectures on “Metals in the IGM” at the Trieste University (2010, 2013)
- Co-tutor of the master thesis (laurea specialistica) of M. Cappetta, at the Trieste University (2008)
- Co-tutor of the master thesis (laurea specialistica) of C. Cremaschini, at the Trieste University (2008)
- Co-supervisor of the PhD thesis of F. Saitta, at the Trieste University (2005-2008)
- Co-tutor of the degree thesis of A. Mikosch, at the Trieste University (2006)

INTERNATIONAL PROJECTS

- Member of the HiRes consortium for the construction of a high resolution spectrograph for the ESO Extremely Large Telescope (E-ELT);
- **2011 - present** Member of the Board of the XQ-100 Legacy Survey: 100 QSOs at redshift $3.5 \leq z \leq 4.5$ observed with the X-shooter spectrograph at the ESO-VLT (ESO Large Programme 189.A-0424);
- **2007 - present** Member of the ESPRESSO (Echelle SPectrograph for Rocky Exoplanet and Stable Spectroscopic Observations) consortium and P.I. of the Data Analysis work package. ESPRESSO is a high resolution, ultra stable spectrograph which will be placed at the VLT combined coudé focus (first light expected early 2017). The European Consortium is led by Switzerland (Geneva Observatory and Geneva University).
- **2008 - 2010** Member of the Instrument Science team and P.I. of the Data Analysis work package for the study of Phase A of CODEX, a very high resolution and stability spectrograph ($R \geq 100000$) proposed for the E-ELT.
- **2008 - 2010** Member of the Instrument Science team for the study of Phase A of SIMPLE, a very high resolution spectrograph ($R \geq 100000$) operating in the near-infrared proposed for the E-ELT.
- **2004 - 2010** Member of the Italian Science team of the instrument X-shooter at the ESO VLT. This high-efficiency spectrograph operates at intermediate resolution ($R \gtrsim 5000$) with a spectral range from the UV to the K’ band ($0.3\text{--}2.5 \mu\text{m}$). P.I. of the GTO project on the study of quasars at $z \gtrsim 6$ (ESO Proposals: 084.A-0550; 085.A-0299; 086.A-0162; 087.A-0607)

OTHER ACTIVITIES

- Referee for international journals: A&A, ApJ, MNRAS, Nature ;
- External referee for the PhD thesis of Tyler Evans (2014; Swinburne University of Technology, Melbourne, Australia)
- External referee for the PhD thesis of Jens-Kristian Krogager (2015; University of Copenhagen, Denmark)
- Member at Large of the Organizing Committee of the IAU Commission on the Intergalactic Medium (since 2015);
- Principal and Co-Investigator of ESO NTT and VLT observational campaigns from 1999 to the present;
- Co-organizer of the seminar season of the Trieste Observatory (since 2010)

COMMUNICATIONS

- **Contributions to international conferences (only the most recent ones)**
 - July 2015 International Workshop *The metal enrichment of diffuse gas in the Universe*, Sesto Pusteria (Bolzano, Italy) , invited talk: ‘Metal Enrichment in the High Redshift CGM and IGM’;
 - June 2015 International Conference *IGM@50 Is the IGM driving star formation?*, Tenuta di Spineto, Sarteano (Siena, Italy), invited talk: ‘Is the high-redshift inter-galactic medium metal enriched?’;
 - May 2015 Meeting of the Italian Astronomical Society, Osservatorio Astronomico di Catania (Italy), invited talk: ‘The high- z inter-galactic medium: present scenario and future prospects’;
 - September 2014 International Workshop *Galaxies in Absorption*, IAP, Paris (France), contributed talk: ‘Metal absorbers at the edge of the reionization epoch’;
 - June 2014 International Conference *Intergalactic matters*, MPIA Heidelberg (Germany), invited talk: ‘Metals in the IGM: approaching the reionization era’;
 - February 2013 ESO workshop *Shaping E-ELT Science and Instrumentation*, Garching (Germany), invited talk: ‘Shaping the metal enrichment history of the intergalactic medium with a high-resolution spectrograph at the E-ELT’;
 - June 2012 International Conference *Metals in Tuscany*, Abbazia di Spineto (Italy), invited talk: ‘Chemical enrichment of the IGM: what do we learn from QSO absorption spectra?’;
 - October 2010 International Workshop *The first year of science with X-shooter*, Como (Italy), invited talk: ‘Optical-NIR spectra of quasars close to re-ionization ($z \approx 6$)’;
 - May 2010 International Workshop *From CASPEC to X-Shooter: 30 years of optical instrumentation and science highlights*, ESO, Garching bei Munchen (Germany), contributed talk: ‘Metals in the IGM: past, present and future’;
 - April 2010 International Conference *JWST and the ELTs: An Ideal Combination*, ESO, Garching bei Munchen (Germany), contributed talk: ‘Is there any metal out there? Studying the IGM chemical abundances and enrichment mechanism with the ELTs’;
 - March 2009 International Conference *Reionization@Ringberg: The Cosmic Evolution of Helium and Hydrogen*, Ringberg Castle (Germany), contributed talk: ‘The density field in the vicinity of QSOs’;
 - October 2007 ESO Workshop *Science with the VLT in the ELT Era*, ESO Garching, contributed talk: ‘The contribution of UVES@VLT to the new era of QSO absorption line studies’, poster with D. Mégevand and C. Lovis ‘Scientific Software concepts for ESPRESSO’;
 - June 2007 International Conference *HI Survival through Cosmic Times*, Abbazia di Spineto (Siena) (Italy), contributed talk: ‘The HI picture from the Lyman- α forest at $z \sim 2 - 3$ ’;
 - April 2007 Annual meeting of the Italian Astronomical Society, Firenze, (Italy), contributed talk: ‘The epoch of high precision spectroscopy’;
 - January 2007 *ASTRONET SYMPOSIUM A Science Vision for European Astronomy in the next 20 Years*, Poitiers (France), contributed talk in the session ‘How do Galaxies Form and Evolve?’
- **Project meetings and other technical meetings**

- June 2015 Italian meeting on HiReS@E-ELT, INAF Headquarters, Roma (Italy)
- April 2015 ESPRESSO Progress Meeting, Geneva (Switzerland)
- March 2015 Meeting HiReS@E-ELT Consortium, Osservatorio di Arcetri, Firenze (Italy)
- December 2014 ESPRESSO Progress Meeting, Lisbon (Portugal)
- October 2014 ESO Pipeline Day, ESO Garching (Germany)
- June 2014 ESPRESSO Progress Meeting, Trieste (Italy), Member of the LOC
- November 2013 Meeting XQ-100 Survey (X-shooter Large Program), DARK Copenhagen (Denmark)
- May 2013 ESPRESSO Final Design Review, ESO Garching (Germany)
- January 2013 HiReS@E-ELT Mini Workshop, Trieste (Italy), Member of the LOC
- January 2013 ESPRESSO Progress Meeting, Sintra (Portugal)
- October 2012 Reflex Workshop, ESO Garching (Germany)
- September 2012 ESPRESSO Progress Meeting, Lanzarote (Spain)
- August 2012 Meeting XQ-100 Survey (X-shooter Large Program), Trieste (Italy), Member of the LOC
- November 2011 ESPRESSO Preliminary Design Review, ESO Garching (Germany)
- April 2011 ESPRESSO Progress Meeting, Trieste (Italy) Member of the LOC
- January 2011 ESPRESSO Kick Off Meeting, Lisbon (Portugal)

• **Invited scientific seminars**

- Dark Cosmology Centre, Copenhagen (Denmark) - November 2015 “Metallicity of the high-redshift CGM and IGM”
- Scuola Normale Superiore di Pisa (Italy) - February 2013 “Metals in the IGM: approaching the edge of the reionization”
- INAF - Osservatorio Astronomico di Roma (Italy) - September 2010 “Is there any metal out there? The quest of metals in the high- z IGM”
- Osservatorio Astronomico di Trieste (Italy) - June 2005 “Cosmology with QSO absorption lines”
- SISSA Trieste (Italy) - 2004 “Chemical abundances in QSO host galaxies and environments”
- Osservatorio Astrofisico di Arcetri, Firenze (Italy) - September 2001 “QSO absorption lines”
- Osservatorio Astronomico di Trieste (Italy) - July 1999 “The redshift evolution of IGM enrichment”
- Osservatorio Astrofisico di Arcetri, Firenze (Italy) - June 1999 “The high-resolution spectrum of the HDF-S quasar”
- IAP, Paris, France - March 1999 “Absorption line systems: clustering and sizes”
- SISSA Trieste (Italy) - 1999 “The QSO in the Hubble Deep Field South”
- Osservatorio astrofisico di Asiago (Italy) - 1997 “An overview on QSO absorbers”
- SISSA Trieste (Italy)- 1996 “Neutral gas at high redshift and the search for primeval galaxies”

Trieste, November 2015

Valentina D’Odorico