

CURRICULUM VITAE

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PERSONAL INFORMATION

Family name, First name: Cresci, Giovanni

Researcher unique identifier(s): ORCID 0000-0002-5281-1417

Date of birth: May 25th, 1977

Nationality: Italian

Family status: Married, 4 children (born in 2009, 2012, 2014, 2014)

URL for web site: <http://www.arcetri.astro.it/~gcresci/>

• EDUCATION

- 2006 PhD in Astronomy, University of Florence, Italy.
PhD Supervisor: Dr. Filippo Mannucci
- 2002 Master in Physics cum Laude, University of Florence, Italy

• CURRENT POSITION

- 2016- Researcher (tenure position), INAF - Osservatorio Astrofisico di Arcetri, Italy

• PREVIOUS POSITIONS

- 2013-2016 Postdoctoral research associate at INAF – Osservatorio di Arcetri, Italy
- 2012-2013 Postdoctoral research associate at INAF – Osservatorio di Bologna, Italy
- 2009-2012 Postdoctoral research associate at INAF – Osservatorio di Arcetri, Italy
- 2006-2009 Postdoctoral research associate at Max Planck Institut fuer extraterrestrische Physik, Garching, Germany
- 2006 Fellowship at the Osservatorio di Arcetri, Italy
- 2005 Visiting student at Max Planck Institut fuer extraterrestrische Physik, Garching, Germany
- 2003 Visiting student at ESO Santiago, Chile

• SUPERVISION OF GRADUATE STUDENTS AND POSTDOCTORAL FELLOWS

- 201- Supervision of Ph.D. student Matilde Mingozzi, University of Bologna, Italy
- 2016- Supervision of Postdoctoral Fellow Michele Perna, INAF – Osservatorio di Arcetri
- 2016- Co-supervision of Ph.D. student Giacomo Venturi, University of Florence, Italy
- 2015-2017 Co-supervision of Ph.D. student Mirko Curti, University of Florence, Italy
- 2014 Co-supervision of master student Mirko Curti, University of Florence, Italy

• COMMISSIONS OF TRUST AND INSTITUTIONAL RESPONSIBILITIES

- 2017 Reviewer for the OPUS funding scheme of the Polish National Science Centre
- 2016- Member of the **NIRSpec on JWST** GTO team
- 2015- Member of the Science Working Group for **HIRES**, High Resolution Spectrograph for ELT
- 2015-2016 Reviewer for the Italian Valutazione della Qualita' della Ricerca (VQR) 2011-2014
- 2015- Organizer of the General Seminar, INAF – Osservatorio di Arcetri
- 2014- Member of the Science Working Group for **MOONS**, the near-IR MOS for VLT
- 2013- Member of **ERIS**, Enhanced Resolution Imager and Spectrograph, Science Team
- 2012- Member of Telescope Allocation Committee for LBT and TNG
- 2011- Coordinator of the science working group “Physical parameter estimate from spectra” for the **Euclid** Science Working Group “Galaxy and AGN”
- 2011-2013 Coordinator of the working group “algorithm definition” of Spectroscopy Organization Unit for the ESA **Euclid** satellite
- 2011- Editorial Referee for Science, A&A, MNRAS, ApJ and ApJL

• ORGANISATION OF SCIENTIFIC MEETINGS

- 2018 In the SOC of the conference “AGN13: Beauty and the Beast”, Milan, Italy (2018)
- 2012 Chair of SOC and LOC of the conference “Metals in Tuscany 2012”, Spineto, Italy (2012)
- 2004 LOC of the conference “The role of mergers and feedback in galaxy formation”, Ringberg, Germany (2004)

- **MAIN RESEARCH PROJECT AND COLLABORATIONS:**

- 2017- Spatially resolved ISM properties in *MaNGA galaxies*, in collaboration with **K. Bundy (UCSC, USA), F. Belfiore (UCSC, USA), M. Mingozi (Univ. Bologna, Italy)**
- 2017- *MOONS GTO survey*, SDSS like rest frame optical survey at $z \sim 1$, in collaboration with **M. Cirasuolo (ESO), L. Vanzi (PUC, Chile), H. Flores (GEPI, France), E. Oliva (INAF, Italy), J. Alfonso (CAAUL, Portugal), M. Carollo (ETH, Switzerland), Paltani (Geneva, Switzerland), et al.**
- 2016- *NIRSpec GTO survey*, in collaboration with **P. Ferruit (ESA), R. Maiolino (Cambridge, UK), N. Franx (Leiden, Netherlands), S. Arribas (INTA/CSIC, Spain), S. Charlot (Paris, France), T. Böker (ESA), et al.**
- 2015- *SUPER survey*, near-IR IFU survey of active galaxies at $z \sim 2$, in collaboration with **V. Mainieri (ESO), M. Brusa (Univ. Bologna, Italy), A. Marconi (Univ. Firenze, Italy), H. Netzer (Tel Aviv, Israel), F. Fiore (INAF, Italy) et al.**
- 2015- *KLEVER survey*, resolved metallicity and ISM on high- z galaxies, in collaboration with **M. Cirasuolo (ESO), R. Maiolino (Cambridge, UK), M. Curti (Univ. Firenze, Italy)**
- 2015- *VANDELS survey*, with particular interest for the measurement of stellar metallicity in high- z galaxies, in collaboration with **R. McLure (Edinburgh, UK) and L. Pentericci (INAF, Italy) et al.**
- 2013- *Outflows and feedback in active galaxies with MUSE (MAGNUM), SINFONI IFU and X-Shooter spectroscopy* in collaboration with **R. Maiolino (Cambridge, UK), V. Mainieri (ESO), A. Marconi (Univ. Firenze, Italy), M. Brusa (Univ. Bologna, Italy)**
- 2012-2014 *The Herschel PEP survey*, in collaboration with **D. Lutz (MPE, Germany), C. Gruppioni, G. Rodighiero (INAF)**
- 2006-2017 *SINS/ZCSINS – high redshift galaxy Spectroscopic Imaging survey in the Near-ir* in collaboration with **R. Genzel and N. Forster-Schreiber (MPE, Germany), S. Lilly (ETH, Switzerland), A. Renzini (INAF, Italy), A. Dekel (Hebrew Univ., Israel) et al.**
- 2009-2015 *AMAZE (Assessing the Mass Abundances redshift Evolution) and LSD (Lyman-break galaxies Stellar populations and Dynamics)*, in collaboration with **F. Mannucci (INAF, Italy), R. Maiolino (Cambridge, UK), A. Marconi (Univ. Firenze).**
- 2004-2006 *SWAN – Survey of a Wide Area with NACO*, in collaboration with **R. Davies, R. Genzel (MPE, Germany) and A. Baker (Rutgers, USA).**
- 2003- *Star formation in local Blue Dwarf Galaxies*, in collaboration with **L. Vanzi (PUC, Chile), M. Sauvage (CEA, France), E. Telles (Rio Observatory, Brazil) et al.**
- 2002-2005 *KAOSS – K-band Arcetri Obscured Supernova Search*, in collaboration with **F. Mannucci, R. Maiolino, M. Della Valle et al. (INAF, Italia)**

- **MAIN INSTRUMENTATION PROJECTS:**

- 2015- Member of the Science Working Group for **HIRES**, High Resolution Spectrograph for ELT
- 2013- Member of the **ERIS** (the next generation IR IFU and AO camera for the VLT) science team
- 2012- Part of the **MOONS** (the multi-object NIR spectrometer for the VLT) development team in Arcetri and part of MOONS science working group
- 2012-2013 **Herschel** Far-IR satellite PACS Instrument Control Center scientist for Italy
- 2011- Responsible for the “algorithm definition” working package of the ESA **Euclid** satellite Spectroscopy Organization Unit; Coordinator of the “Physical parameter estimate from spectra” section of the Euclid “Galaxy and AGN” science working group
- 2010- Collaboration to the characterization in the lab of the performances of the near-IR multi object spectrograph **NIRSpec** for the space telescope **JWST**, with the ESA team (Project Scientist: P. Ferruit, ESA), and member of the NIRSpec GTO team
- 2010-2011 Participation to the commissioning and science verification of the near-IR, AO assisted camera **PISCES** at LBT, in collaboration with INAF and LBT Observatory
- 2008-2009 Collaboration to the construction and commissioning and science verification of the multi-object near-IR spectrometer **LUCI** for the LBT, in collaboration with the LUCIFER team at MPE
- 2006 Participation in the commissioning and science verification of the Adaptive Optics assisted camera **Adopt@TNG** at the National Italian Telescope TNG, with the AO group in Arcetri

Achievements track-record

During my career, I have achieved important results on the interplay between gas flows and galaxy evolution. Thanks to the developed skills in the data analysis and interpretation of near-IR and optical spectroscopy, in particular Integral Field and MOS, I opened up new research fields, as the direct study of negative and positive feedback and the use of metallicity gradients as infall tracers. This work resulted in 87 refereed papers on leading journals (including two in Nature, one of which as first author, and one in Science), 23 invited talks at international conferences and research institutes (five reviews), an invited Comment on Nature Astronomy on AGN feedback and involvement in forefront instrumental projects, such as NIRSpec, ERIS, MOONS etc. Since my Ph.D., *I have independently inspired and managed my research projects*, establishing several **international collaborations** as testified by the number of researcher who have co-signed my papers (~200 working in 15 different countries). I have spent almost 4 years working in Germany and several months in Chile, and I have been frequently invited to visit international institutes all over the world for short periods.. On topics relevant to this proposal, I have co-supervised one Master and two Ph.D. students, and since 2016 I am supervising a Ph.D. student and a young post-doc to work on outflows and feedback in local and high-z galaxies, respectively, thus **consolidating my own research group** at INAF – Osservatorio di Arcetri.

• SCIENTIFIC PUBLICATIONS:

I have published **90 papers** on the major refereed scientific journals, including Nature, Science, ApJ, MNRAS, A&A, **12 of which as PI** and **52 without the PhD supervisor** as co-author, for a total of **9264 citations** (**Hirsch index H=46**, source Google Scholar), with 23 articles with >100 citations. Three of my publications as PI (2005, A&A, 433, 447; 2010, Nature, 467, 811; 2017, A&A, 604,101) were selected for press releases by INAF and ESO, and resulted in a large visibility with the general public. A complete list of publications is available at <https://goo.gl/aHhDfN>; here a selection of 10 is reported, with those without the presence as co-author of the Ph.D. supervisor in italic:

1. *Cresci, G.; Vanzi, L.; Telles, E.; Lanzuisi, G.; Brusa, M.; Mingozi, M.; Sauvage, M.; Johnson, K., “The MUSE view of He 2-10: No AGN ionization but a sparkling starburst”, 2017, A&A, 604, 101*
2. *Cresci, G.; Marconi, A.; Zibetti, S.; Risaliti, G.; Carniani, S.; Mannucci, F.; Gallazzi, A.; Maiolino, R.; Balmaverde, B.; Brusa, M.; Capetti, A.; Cicone, C.; Feruglio, C.; Bland-Hawthorn, J.; Nagao, T.; Oliva, E.; Salvato, M.; Sani, E.; Tozzi, P.; Urrutia, T. Venturi, G. “The MAGNUM survey: Positive feedback in the nuclear region of NGC 5643 suggested by MUSE”, 2015, A&A, 582, 73*
3. *Cresci, G.; Mainieri, V.; Brusa, M.; Marconi, A.; Perna, M.; Mannucci, F.; Piconcelli, E.; Maiolino, R.; Feruglio, C.; Fiore, F.; Bongiorno, A.; Lanzuisi, G.; Merloni, A.; Schramm, M.; Silverman, J. D.; Civano, F. “Blowin’ in the wind: both “positive” and “negative” feedback in a $z \sim 1.6$ QSO”, 2015, ApJ, 799, 82*
4. *Cresci, G.; Mannucci, F.; Sommariva, V.; Maiolino, R.; Marconi, A.; Brusa, M., “The metallicity properties of zCOSMOS galaxies at $0.2 < z < 0.8$ ”, 2012, MNRAS, 421, 262*
5. *Cresci, G.; Mannucci, F.; Maiolino, R.; Marconi, A.; Gnerucci, A.; Magrini, L., “Gas accretion as the origin of chemical abundance gradients in distant galaxies”, 2010, Nature, 467, 811*
6. *Cresci, G.; Hicks, E. K. S.; Genzel, R.; Schreiber, N. M. Förster; Davies, R.; Bouché, N.; Buschkamp, P.; Genel, S.; Shapiro, K.; Tacconi, L.; Sommer-Larsen, J.; Burkert, A.; Eisenhauer, F.; Gerhard, O.; Lutz, D.; Naab, T.; Sternberg, A.; Cimatti, A.; Daddi, E.; Erb, D. K. Kurk, J.; Lilly, S. L.; Renzini, A.; Shapley, A.; Steidel, C. C.; Caputi, K., “The SINS survey: modeling the dynamics of $z \sim 2$ galaxies and the high-z Tully-Fisher relation”, 2008, ApJ, 697, 115*
7. *Cano-Díaz, M.; Maiolino, R.; Marconi, A.; Netzer, H.; Shemmer, O.; Cresci, G., “Observational evidence of quasar feedback quenching star formation at high redshift”, 2012, A&A, 537, 8*
8. *Mannucci, F.; Cresci, G.; Maiolino, R.; Marconi, A.; Gnerucci, A., “A fundamental relation between mass, star formation rate and metallicity in local and high-redshift galaxies”, 2010, MNRAS, 408, 211*
9. *Förster Schreiber, N. M.; Genzel, R.; Bouché, N.; Cresci, G.; Davies, R.; Buschkamp, P.; Shapiro, K.; Tacconi, L. J.; Hicks, E. K. S.; Genel, S.; Shapley, A. E.; Erb, D. K.; Steidel, C. C.; Lutz, D.; Eisenhauer, F.; Gillessen, S.; Sternberg, A.; Renzini, A.; Cimatti, A.; Daddi, E. Kurk, J.; Lilly, S.; Kong, X.; Lehnert, M. D.; Nesvadba, N.; Verma, A.; McCracken, H.; Arimoto, N.; Mignoli, M.; Onodera, M., “The SINS survey: SINFONI Integral Field Spectroscopy of $z \sim 2$ Star-forming Galaxies”, 2009, ApJ, 706, 1364*
10. *Genzel, R.; Burkert, A.; Bouché, N.; Cresci, G.; Förster Schreiber, N. M.; Shapley, A.; Shapiro, K.; Tacconi, L. J.; Buschkamp, P.; Cimatti, A.; Daddi, E.; Davies, R.; Eisenhauer, F.; Erb, D. K.; Genel, S.; Gerhard, O.; Hicks, E.; Lutz, D.; Naab, T.; Ott, T. Rabien, S.; Renzini, A.; Steidel, C. C.; Sternberg, A.; Lilly, S. J., “From rings to bulges: evidence for rapid circular evolution at $z \sim 2$ from SINS integral field spectroscopy”, 2008, ApJ, 687, 789*

- **INVITED ORAL PRESENTATIONS AT CONFERENCES AND RESEARCH INSTITUTES:**

- “The evolution of the Metallicity scaling relations across cosmic time”, at A star was born, Spineto, Italy, 2018
- “Evidence for feedback in individual QSOs”, at Lorentz Center, Netherland, 2017 (*Review*)
- “AGN driven Outflows & Feedback”, at Challenges in Galaxy Evolution, Florence, Italy, 2017 (*Review*)
- “The MAGNUM survey”, MIAPP, Garching, Germany, 2017
- “AGN Feedback locally and at high-z”, at AGN12, Napoli, Italy, 2016 (*Review*)
- “Feedback from AGN outflows in the local and high-z Universe”, INAF-Roma, Italy, 2015
- “LBT/LUCI view of star formation and metallicity at high-z” at *LBT workshop*, Padova, Italy, 2014
- “Metallicity near and far”, INAF-Bologna, Italy, 2013
- “Evolution of metallicity relations up to $z\sim 3$ ”, at Metals in Tuscany, Spineto, Italy, 2012
- “Gas accretion in distant galaxies as the origin of metallicity gradients” at EWASS, Rome, Italy, 2012
- “Metallicity Near and Far”, Università di Padova, Italy, 2012
- “IFU observations of high-z galaxies”, ELIXIR Advanced PhD school, Madrid, Spain, 2011 (*Review*)
- “Metallicity in the early Universe” at Maximizing the LBT performances, Padova, Italy, 2011
- “Metallicity near and far”, at “Multiwavelength Views of the ISM in High-z Galaxies”, Santiago, Chile, 2011 (*Review*)
- “Metallicities near and far”, IRA, Bologna, Italy, 2011
- “AMAZE with LSD” at Galaxies in the distant Universe, Ringberg, Germany, 2010
- “Dynamics and metallicity at high-z”, Rutgers University, USA, 2010
- “Witnessing galaxy evolution at $z>2$ with SINFONI”, Padova Observatory, Italy, 2009
- “Galaxy formation and evolution in unprecedented detail”, Arcetri Observatory, Italy, 2009
- “The SINS survey”, Pontificia Universidad Católica, Santiago, Chile, 2009
- “Processing and visualizing 3D near infrared data” at the 3D2008, ESO, Germany, 2008
- “Near-IR SNe searches: looking through the dust” at the SN rates08, Arcetri, Italy, 2008
- “The SINS survey”, Obs. National, Rio de Janeiro, Brasil, 2007
- “The SWAN survey: galaxies at the diffraction limit”, MPE, Garching, Germany, 2006
- “The SWAN survey: dealing with anisoplanatic PSFs and first results”, Arcetri, Italy, 2005

I have also presented the results of my work at 33 more international conferences between 2003 and 2017.

- **OBSERVING EXPERIENCE AND TELESCOPE TIME AS PI:**

I have been the PI of 15 successful projects at the main telescope facilities in the world, for a total of ~430 hours from radio to optical, and co-I of more than 80. I have spent more than 80 hours of observations at the major observing facilities, including VLT, NTT, ESO 3.6m, LBT, TNG and TIRGO, using advanced observing techniques such as Adaptive Optics, integral field and multi-object spectroscopy.

- **FUNDING ID, PRIZES, GRANTS:**

- 2017: Co-I ASI grant “X-ray studies of high-z QSOs to understand AGN feedback”, PI, M. Cappi (80 k€)
- 2017: Co-I PRIN INAF “Empowering SKA as a probe of galaxy evolution with HI”, PI L. Hunt (411k€)
- 2017: Co-I and WP leader “Evolution of galaxies” for the MIUR grant “FRONTIERA”, PI I. Pagano (986k€)
- 2016: “*Abilitazione Scientifica Nazionale*” granted for Full Professorships in Italian Universities
- 2014: Co-I PRIN-INAF “Windy black Holes combing galaxy evolution”, PI F. Fiore (140 k€)
- 2013: “*Abilitazione Scientifica Nazionale*” granted for Associate Professorships in Italian Universities
- 2011: Co-I PRIN-INAF “Black hole growth and AGN feedback through the cosmic time”, PI F. Fiore
- 2011: Co-I PRIN-MIUR “The dark Universe and the cosmic evolution of baryons”, PI A. Cimatti
- 2010: Co-I ASI/INAF PRIN, “Metallicity evolution of galaxies”, PI: F. Mannucci
- 2009: Co-I of HST cycle-17 grant for data Analysis, PI: F. Mannucci
- 2008: Co-I of PRIN-INAF “Galaxies under a microscope”, PI: F. Mannucci
- 2008: Co-I of Spitzer Cycle-5 Data Analysis Award, PI: F. Mannucci
- 2004: Grant from MPE, to work 1 year in Garching, Germany, with R. Davies, M. Lenhart and R. Genzel
- 2003: PhD grant (3 years) from Università degli Studi di Firenze
- 2003: Grant from ESO, European Southern Observatory, to work 4 months in Santiago, Chile, with L. Vanzani

- **CAREER BREAKS**

The contracts I had at the moment of all my four sons’ birth and early childhood did not allow any formal paternity leave, and their impact on my working activity cannot be formally quantified.