

# Andrea Reguitti

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## Research interests

- Time-domain stellar astrophysics; optical transients; supernovae: interacting, core-collapse, thermonuclear; Gap Transients: supernova impostors, stellar mergers, candidates Electron-Capture Supernovae.
- Electromagnetic domains: Near-Ultraviolet (NUV), Optical, Near-Infrared (NIR), Mid-Infrared (MIR).

## Education

04/2019 – **Ph.D. in Astrophysics**, *Universidad Andres Bello (UNAB)*, Santiago, Chile, Supervisor: Dr. G. Pignata  
06/2023 (UNAB), Co-supervisor: Dr. A. Pastorello (INAF-OAPd).

Thesis title: Exploring the final stages of massive stars through Type II<sub>n</sub> Supernova precursors and LBV variability  
In my PhD thesis I searched for precursor activity years before the explosion of a sample of 27 nearby Type II<sub>n</sub> SNe. Then, I reconstructed decades-long light curves of a sample of 12 eruptive Luminous Blue Variables in the Local Group, looking for their eruptions. Finally, I compared the light curves of the precursors to those of the LBVs, to see if they are similar and therefore if LBVs are indeed good candidates as progenitors of SNe II<sub>n</sub>. While the characteristics of the precursors and the LBV eruptions are different, I still found a few similarities, making the connection possible.

10/2016 – **M.Sc. in Astronomy**, *Padova University*, Padova, Italy, Advisors: Dr. S. Cioi and Dr. A. Pastorello,  
09/2018 *final remark - 110/110 cum Laude*.

Thesis title: The peculiar SN 2013gc: evidences of an eruptive phase before the explosion  
In this thesis I analysed the interactive Type II<sub>n</sub> SN 2013gc, its light curves and spectra. By looking at archival images taken a few years before the explosion, I found evidences of an eruptive phases from the progenitor, during which it expelled circumstellar material, with which the SN ejecta interacted after the explosion.

10/2013 – **B.Sc. in Astronomy**, *Padova University*, Padova, Italy, Advisors: Dr. S. Cioi and Dr. M. Berton,  
10/2016 *final remark - 101/110*.

Thesis title: Determinazione della massa del buco nero in un campione di FSRQ a redshift intermedio  
In this thesis I studied a small sample of 9 flat-spectrum radio quasars at intermediate redshift, analysed their spectra from the SDSS survey and from them I calculated the masses of the supermassive black holes at their centres.

## Languages knowledge

Native language **Italian**.

Second language **English**, Reading ability: Excellent; Writing ability: Good; Speaking ability: Good.

Third language **Spanish**, Reading ability: Basic; Speaking ability: Intermediate.

## Employment history

07/2023 – **Postdoc**, "*Assegno di ricerca*", INAF-BRERA OBSERVATORY, Merate (LC), Italy.  
present Advisor: Dr. P. d'Avanzo

08/2018 – **Formative stage**, INAF-PADOVA OBSERVATORY, Padova, Italy.  
11/2018 Advisor: Dr. A. Pastorello

## Publication summary

- Total: 32 refereed publications, 4 submitted; >120 non-refereed publications; ~490 citations. H-index: 14.
- First author: 3 refereed publications; 37 non-refereed publications; >40 citations.
- ADS public library URL: <https://ui.adsabs.harvard.edu/public-libraries/in38wuqjTi6q0-0ZzVnzQA>

## Scientific Collaborations

- 07/2023 – present **Member of the Electromagnetic counterparts of gravitational wave sources at the Very Large Telescope (ENGRAVE) Collaboration.**
- 07/2023 – present **Member of the GRAVitational Wave Inaf TeAm (GRAWITA) Collaboration**, *search and follow-up of electromagnetic counterparts of gravitational waves events.*
- 06/2022 – present **Member of the LSST Transients and Variable Stars (TVS) Science Collaboration.**
- 01/2020 – present **Associated to the Istituto Nazionale di Astrofisica (INAF) - Osservatorio Astronomico di Padova (OAPd).**
- 06/2019 – 06/2023 **Affiliated to the Chilean Millennium Astrophysical Institute (MAS).**
- 01/2018 – present **Member of the Public ESO Spectroscopic Survey for Transient Objects (PESSTO)**, *to study optical transients with the NTT telescope*, member of the interacting supernovae group, member of the Target Alert Team for 6 subruns.
- 12/2017 – present **Member of the NOT Unbiased Transient Survey (NUTS)**, *to study optical transients with the NOT telescope*, duties of sending triggers and reducing data.

## Honors and awards

- 2018 **Mille e una lode**, *award for the student with the highest average exams score in the Academic year 2016-2017*, PADOVA UNIVERSITY, 1,000 EUR.

## Scientific presentations

- 15/06/2023 **L'universo transiente al Copernico**, *Copernico @50 workshop*, Asiago, Italy, (contributed talk).
- 14/03/2023 **Reconstructing the historical light curves of Luminous Blue Variables**, *XVIII SOCHIAS Meeting*, Temuco, Chile, (contributed talk).
- 24/11/2022 **Linking SN impostors and Luminous Blue Variables**, *talk at the SN group meeting*, MPA, Garching, Germany.
- 08/11/2022 **Searching for precursor activity of Type IIn Supernovae**, *online Supervirtual conference 2022*, (contributed talk).
- 04/07/2022 **Linking SN impostors and Luminous Blue Variables**, *"Gap Transients: giant eruptions or stellar mergers?" workshop*, Sexten, Italy, (contributed talk).
- 13/04/2022 **SN 2021foa: a transitional 2009ip-like and Ibn event**, *South American Supernovae (SAS) 2022 workshop*, ESO@Vitacura, Santiago, Chile, (contributed talk).
- 15/11/2021 **Searching for precursor activity of Type IIn Supernovae**, *online Supervirtual conference 2021*, (poster).
- 17/11/2020 **The candidate Electron-Capture SN 2018hwm**, *online NUTS2 Meeting II*, (contributed talk).
- 21/09/2020 **The fast rise of the peculiar SN 2018ivc**, *online ePESSTO Meeting*, (contributed talk).
- 18/10/2019 **The rise and fall of two peculiar type II events: SN 2018ivc and SN 2018hwm**, *4th NUTS Meeting*, Osservatorio Astronomico di Padova, Padova, Italy, (contributed talk).
- 08/06/2018 **Signatures of an eruptive phase before the explosion of the peculiar SN 2013gc**, *2018 ICYAA Conference*, Padova University, Padova, Italy, (contributed talk).

## Participation at meetings, conferences, schools

- 14/06/2023 – **Copernico @50**, *workshop*, organised by L. Tomasella, Asiago, Italy.  
16/06/2023
- 19/04/2023 – **Writing and communicating your science**, *workshop*, ESO@Vitacura, Santiago, Chile.  
20/04/2023
- 13/03/2023 – **XVIII SOCHIAS Meeting**, *conference*, Temuco, Chile.  
16/03/2023
- 07/11/2022 – **online Supervirtual conference 2022**, *From Common to Exotic Transients*, virtual conference on supernovae and related transients.  
11/11/2022
- 04/07/2022 – **Gap Transients: giant eruptions or stellar mergers?**, *workshop*, Sexten, Italy.  
08/07/2022
- 11/04/2022 – **South American Supernovae (SAS) 2022**, *workshop*, ESO@Vitacura, Santiago, Chile.  
13/04/2022
- 15/11/2021 – **online Supervirtual conference 2021**, *From Common to Exotic Transients*, virtual conference on supernovae and related transients.  
19/11/2021
- 03/10/2021 – **Scientific Communication in Astronomy**, *workshop*, Bertinoro, Italy.  
08/10/2021
- 24/11/2020 – **online SOXS Consortium Science Meeting**, organised by S. Campana, INAF-Osservatorio astronomico di Brera.  
26/11/2020
- 17/11/2020 – **online NUTS2 Meeting II**, organised by E. Kankare, Turku University.
- 21/09/2020 – **online ePESSTO+ Meeting**, organised by C. Inserra, Cardiff University, and J. Chen, Stockholm University.  
22/09/2020
- 17/10/2019 – **4th NUTS Meeting**, Osservatorio Astronomico di Padova, Padova, Italy.  
18/10/2019
- 14/02/2019 – **Asiago Day 2019 meeting**, Padova University, Padova, Italy.
- 29/07/2018 – **Supermassive Black Holes and their Host Galaxies**, *PhD Summer School*, Asiago Astrophysical Observatory, Asiago, Italy.  
04/08/2018
- 23/07/2018 – **ePessto MeetingIII@Rome**, Consiglio Nazionale delle Ricerche (CNR) headquarters, Rome, Italy.  
24/07/2018

## Recent observing time awarded (last 2 years)

- 10/2023 – **ESO Very Large Telescope (VLT) 8.2m UT3 + X-Shooter (8 hours)**, *Period 112*, "The late time of strongly-interacting supernovae", Paranal Observatory.  
03/2024  
PI: I. Salmaso
- 04/2023 – **Telescopio Nazionale Galileo (TNG) 3.58m + DOLORES and Rapid Eye Mount (REM) 0.6m + ROS2+REMIR (30 hours/semester)**, *1.5 years Large Program: 3 semesters in Periods AOT47-49*, "Characterising the elusive interacting transients", La Palma Observatory.  
09/2024  
PI: G. Valerin
- 02/2022 – **Schmidt 0.67m + Moravian (120 hours)**, *2 years Large Program*, "Monitoring the erratic variability of Luminous Blue Variables and interacting Supernovae with the Asiago Schmidt telescope", Asiago Astrophysical Observatory.  
01/2024  
PI: A. Reguitti
- 07/2022 – **Liverpool (LT) 2.0m + IO:O (35 hours)**, *rank A*, "Interacting gap transients, fast (Ibn/Icn) and slow-evolving (Iln) supernovae", La Palma Observatory.  
12/2022  
PI: P.A. Mazzali
- 02/2022 – **Copernico 1.82m + AFOSC (2 nights/month + 3 hours/month of ToO)**, *2 years Large Program*, "Nearby and Strongly-interacting Supernovae", Asiago Astrophysical Observatory.  
01/2024  
PI: I. Salmaso

- 10/2021 – present **Nordic Optical Telescope (NOT) 2.56m + ALFOSC and NOTCAM (65 hours/semester of soft ToO + 12 hours/semester of hard ToO with ALFOSC, 8 half-nights with NOTCAM in service mode)**, "The local transient Universe", La Palma Observatory.  
PI: E. Kankare, M. Stritzinger, P. Lundqvist
- 04/2021 – 09/2021 **ESO Very Large Telescope (VLT) 8.2m UT3 + X-Shooter (2 hours)**, *Period 107*, "Nailing supernova progenitors with X-shooter", Paranal Observatory.  
PI: L. Tartaglia
- 02/2020 – 01/2022 **Copernico 1.82m + AFOSC (2 nights/month)**, *2 years Large Program*, "Studying intermediate-luminosity optical transients, supernovae interacting with circumstellar material, and transients in the galaxy nuclei with the Asiago facilities", Asiago Astrophysical Observatory.  
PI: **A. Reguitti**
- 04/2019 – present **ESO New Technology Telescope (NTT) 3.58m + EFOSC2 and SOFI (90 nights/semester)**, *Large Program*, "ePESSTO+: the (advanced) extended Public ESO Spectroscopic Survey of Transient Objects", La Silla Observatory.  
PI: C. Inserra

## On-site observational experiences

- 01/2020 – present **Copernico 1.82m + AFOSC and Schmidt 0.67m + Moravian (14.5 nights and counting)**, *Asiago Astrophysical Observatory, Italy*, imaging and spectroscopic observation of Gap Transients and interacting supernovae.
- 12/2017 – 04/2018 **Copernico 1.82m + AFOSC and Schmidt 0.67m + SBIG (9 nights)**, *Asiago Astrophysical Observatory, Italy*, imaging and spectroscopic observation of supernovae.
- 06/2016 **Galileo 1.22m + B&C (4 nights)**, *Asiago Astrophysical Observatory, Italy*, for practice in the use of a professional telescope, spectroscopic observation of quasars.

## Technical and Computer skills

**Processing pipelines** of optical and near-infrared spectroscopic and photometric data, taken with Asiago telescopes (AFOSC, Moravian), NOT (ALFOSC), NTT (EFOSC2, SOFI), GTC (OSIRIS).

**Data reduction:** *Swift*, *GALEX* (NUV), *WISE*, *Spitzer*, *JWST* (MIR) space telescopes.

Operating Systems Windows, Ubuntu, MacOS

Codes language Python, Jupyter, LaTeX

Softwares SAO DS9, Aladin, IRAF, PyRAF, Photutils

## Professional service

- 06/2023 **LOC Member**, *Copernico @50 workshop*, Asiago, Italy.
- 10-12/2022 **Journal referee**, *The Astrophysical Journal*, *Monthly Notices of the Royal Astronomical Society*.
- 12/2022 **TAC member**, *TNG/REM*, AOT47 (semester 2023A).

## Teaching experience

- 21/07/2023–24/07/2023 **Training** of PhD students Beth Fitzpatrick and Robert Byrne from UCD on how to conduct an observing run at a professional telescope, Asiago Astrophysical Observatory, Italy
- 20/07/2022 *Transienti, Novae e Supernovae*, lecture at the ASYAGO Summer School 2022, Asiago, Italy

## Outreach Activity

- 16/01/2023 **Il Telescopio Spaziale James Webb**, *educational colloquium*, Scuola Superiore (High School) G. Perlasca, Idro, Italy.
- 26/11/2022 **Costellazioni e mitologia**, *public colloquium*, Agnosine public library, Italy.
- 12/11/2022 **Il Telescopio Spaziale James Webb**, *public colloquium*, Agnosine public library, Italy.

- 30/09/2022 **European Researchers Night**, *oral presentation of the Asiago Schmidt telescope*, organised by S. Zaggia, INAF-Osservatorio Astronomico di Padova, Italy.
- 19/10/2021 **I colori del cielo**, *colloquium within the series of webinars 'A spasso tra le stelle'*, organised by F. Manzini, Tradate Astronomical Observatory, Italy.
- 24/09/2021 **European Researchers Night**, *oral presentation of the Asiago Copernico 1.82m telescope*, organised by S. Zaggia, INAF-Osservatorio Astronomico di Padova, Italy.
- 08/09/2021 **A spasso tra le galassie**, *by "comunicazione oapd" for the European Researchers Night*, Youtube interview, organised by C. Boccato.
- 12/2020 – **ASYAGO Schools**, *for high-school students*, participation as a 'tutor', both online and in-person.  
07/2023 Asiago Astrophysical Observatory, Italy
- 09/05/2016 **TransitodiMercurio: il disco solare nella sua interezza (H-alfa)**, *Youtube broadcast on occasion of the 2016 Mercury transit in front of the Sun*, organised by G. Umbriaco, Asiago Astrophysical Observatory, Italy.

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