

Track record: Stritzinger, Maximilian

A) Selected outputs

1. Early-time supernovae and progenitor diagnostics. Led early-time observations of supernovae (SNe), providing the first direct evidence that stripped-envelope He-rich SNe arise from the core-collapse of massive stars. Developed programmes capturing SNe observations within hours of explosion that have revealed colour and spectroscopic signatures which constrain progenitor structure, circumstellar material, and explosion physics across various flavors of core-collapse and Type Ia SNe. These works established early-phase observations as a key diagnostic for linking SNe to their progenitors and are now widely adopted in time-domain studies.

Role: Led observing programmes and analysis; principal author on key papers.

PhD work on SNe Ia used bolometric light curves and ^{56}Ni masses to reveal a broad ejecta-mass distribution, supporting sub-Chandrasekhar-mass explosions and non-standard models.

I established the origin of the Type Iax subclass of SNe Ia, constraining their explosion properties and progenitor systems and demonstrating, through near-infrared spectroscopy of SN 2010ae obtained with VLT/X-shooter, that they arise from disrupted white dwarfs rather than massive stars.

Role: Lead VLT observing program, analysis, & principal author.

2. SNe Ia cosmology and precision calibration. Contributed to establishing SNe Ia as precision extragalactic distance indicators through photometric calibration, light-curve modeling, and mitigation of dominant systematic uncertainties. Within the *Carnegie Supernova Project*, contributed to the development of intrinsic colour relations and calibration frameworks, as well as high-quality datasets that are now widely used in precision cosmology.

Founded and lead the Aarhus–Barcelona peculiar velocity project FLOWS, currently assembling one of the largest nearby SN Ia near-IR samples to map the peculiar velocity field and trace the distribution of dark matter in the local Universe, linking SN observations directly to large-scale structure.

Role: Contributor to SN Ia calibration; founder and PI of FLOWS.

3. Interacting SNe and circumstellar material (CSM) & environments. Constrained progenitor mass loss in SNe exhibiting strong shock interaction with dense CSM using multi-wavelength observations. This includes analyses of long-lived SNe IIn over decade timescales and expanded samples enabling systematic characterization. Recently, I led a *Hubble Space Telescope* study of SN 2016adj, located within the iconic dust lane of Centaurus A, revealing multiple light echoes that trace the underlying dust distribution. In a companion study, I presented a detailed optical and near-infrared analysis of SN 2016adj, including rare ~ 100 -day spectra, identifying narrow circumstellar hydrogen emission tracing recent mass loss from the progenitor and estimated the carbon-monoxide mass via its first overtone feature. *Role:* Led programme and analysis; principal author.

4. Data products, methods, and community tools. Produced widely used datasets and analysis methods, including large homogeneous samples of Type II SNe and photometric and spectroscopic datasets of stripped-envelope SNe with detailed physical interpretation. Contributed to and led numerous

Type Ia datasets enabling population-level studies and developed methods for reddening estimation and light-curve analysis. These datasets and tools are widely used within the community and support astrophysical and cosmological applications.

Role: Led data releases and methods; senior contributor to survey infrastructure.

B) Summary statistics

- Total number of refereed journal publications to date: 285
- First-author refereed publications: 23
- Authorship on 7 papers published in the *Nature* family of journals
- and instrumentation proceedings: 47
- Total citations to date: >19,500 (NASA ADS); >25,000 (Google Scholar)
- Refereed papers published between 2017–2026: 173
- Contributions to transient discovery and classification include numerous circulars and telegrams

C) Selected list of publications with leading authorship since 2018

2026. **Stritzinger, M. D.**, Moriya, T. J., Bose, S., et al. (21 authors). *The broad-lined type Ic supernova 2020lao experienced an energetic explosion with no central-engine signatures.* *A&A*, 708, 305.

2026. Bose, S., **Stritzinger, M. D.**, Malmgaard, A., et al. (18 authors). *The Type Ia supernova 2021hem: A 2003fg-like event in an apparently hostless environment.* *A&A*, 706:A252.

2026. Cartier, R., Contreras, C., **Stritzinger, M. D.**, Hamuy, M., Ruiz-Lapuente, P., Prieto, J. L., Anderson, J. P., Cikota, A., Gerlach, M., et al. (9 authors). *Unveiling the nature of SN 2022jli: The first double-peaked SE SN showing periodic undulations and dust emission.* *A&A*, 707, A161.

2025. Bose, S., **Stritzinger, M. D.**, Ashall, C., et al. (26 authors). *Expanding the parameter space of 2002es-like Type Ia supernovae: On the underluminous ASASSN-20jq/SN 2020qxp.* *A&A*, 699:A169.

2025. Müller-Bravo, T. E., Galbany, L., **Stritzinger, M. D.**, et al. (11 authors). *Analyzing Type Ia supernovae near-infrared light curves with principal component analysis.* *A&A*, 702, A134.

2024. **Stritzinger, M. D.**, Baron, E., Taddia, F., et al. (29 authors). *The carbon-rich type Ic supernova 2016adj in the iconic dust lane of Centaurus A: Potential signatures of an interaction with circumstellar hydrogen.* *A&A*, 686:A79.

2024. Anderson, J. P., Contreras, C., **Stritzinger, M. D.**, et al. (46 authors). *Optical and near-infrared photometry of 94 Type II supernovae from the Carnegie Supernova Project.* *A&A*, 692:A95.

2023. **Stritzinger, M. D.**, Holmbo, S., Morrell, N., et al. (17 authors). *The Carnegie Supernova Project I. Optical spectroscopy of stripped-envelope supernovae.* *A&A*, 675:A82.

2023. Holmbo, S., **Stritzinger, M. D.**, Karamehmetoglu, E., et al. (17 authors). *The Carnegie Supernova Project I. Spectroscopic analysis of stripped-envelope supernovae.* *A&A*, 675:A83.

2022. **Stritzinger, M. D.**, Taddia, F., Lawrence, S. S., et al. (9 authors). *Hubble Space Telescope Reveals Spectacular Light Echoes Associated with the stripped SN 2016adj in the iconic dust lane of*

Centaurus A. ApJ, 939:L8.

2022. Mazzali, P. A., Benetti, S., **Stritzinger, M. D.**, et al. (4 authors). *A very low central O mass in the peculiar Type Ia SN 2010lp: further diversity at the low-luminosity end of SNe Ia*. MNRAS, 511:5560–5569.

2020. **Stritzinger, M. D.**, Taddia, F., Holmbo, S., et al. (16 authors). *The Carnegie Supernova Project II. Early observations and progenitor constraints of the Type Ib supernova LSQ13abf*. A&A, 634:A21.

2020. **Stritzinger, M. D.**, Taddia, F., Fraser, M., et al. (26 authors). *The Carnegie Supernova Project II. Observations of the intermediate-luminosity red transient SNhunt120*. A&A, 639:A103.

2020. **Stritzinger, M. D.**, Taddia, F., Fraser, M., et al. (32 authors). *The Carnegie Supernova Project II. Observations of the luminous red nova AT 2014ej*. A&A, 639:A104.

2020. Taddia, F., **Stritzinger, M. D.**, Fransson, C., et al. (18 authors). *The Carnegie Supernova Project II. The shock wave revealed through the fog: The interacting type IIn SN 2013L*. A&A, 638:A92.

2020. Moriya, T. J., **Stritzinger, M. D.**, Taddia, F., et al. (21 authors). *The Carnegie Supernova Project II. Observations of SN 2014ab revealing a 2010jl-like SN IIn with dust*. A&A, 641:A148.

2020. Tomasella, L., **Stritzinger, M. D.**, Benetti, S., et al. (19 authors). *Observations of the low-luminosity Type Iax supernova 2019gsc: a fainter clone of SN 2008ha?* MNRAS, 496:1132–1143.

2020. Chen, P., Dong, S., **Stritzinger, M. D.**, et al. (17 authors). *The most rapidly declining Type I supernova 2019bkc/ATLAS19dqr*. ApJ, 889:L6.

2019. Holmbo, S., **Stritzinger, M. D.**, Shappee, B. J., et al. (12 authors). *Discovery and progenitor constraints on the Type Ia supernova 2013gy*. A&A, 627:A174.

2018. **Stritzinger, M. D.**, Shappee, B. J., Piro, A. L., et al. (20 authors). *Red versus Blue: Early Observations of Thermonuclear Supernovae Reveal Two Distinct Populations?* ApJ, 864:L35.

2018. **Stritzinger, M. D.**, Anderson, J. P., Contreras, C., et al. (31 authors). *The Carnegie Supernova Project I. Photometry data release of low-redshift stripped-envelope supernovae*. A&A, 609:A134.

2018. **Stritzinger, M. D.**, Taddia, F., Burns, C. R., et al. (31 authors). *The Carnegie Supernova Project I. Methods to estimate host-galaxy reddening of stripped-envelope supernovae*. A&A, 609:A135.

2018. Taddia, F., **Stritzinger, M. D.**, Bersten, M., et al. (26 authors). *The Carnegie Supernova Project I. Analysis of stripped-envelope supernova light curves*. A&A, 609:A136.

2018. Gall, C., **Stritzinger, M. D.**, Ashall, C., et al. (14 authors). *Two transitional Type Ia supernovae located in the Fornax cluster member NGC 1404: SN 2007on and SN 2011iv*. A&A, 611:A58.

2018. Ashall, C., Mazzali, P., **Stritzinger, M. D.**, et al. (11 authors). *On the Type Ia supernovae 2007on and 2011iv: evidence for Chandrasekhar-mass explosions at the faint end of the luminosity–width relationship*. MNRAS, 477:153–174.

2018. Lyman, J. D., Taddia, F., **Stritzinger, M. D.**, et al. (14 authors). *Investigating the diversity of SNe Type Iax: a MUSE and NOT spectroscopic study of their environments*. MNRAS, 473:1359–1387.