

Dr Maria Vincenzi

Research scholar

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Publications

Lead Author Publications

1. A. BAILEY, **M. VINCENZI**, ET AL., *Type Ia Supernova cosmology combining data from the Euclid mission and the Vera C. Rubin Observatory*, arXiv e-prints, (2022), p. arXiv:2211.01206.
- Supervised Duke undergraduate student Ava Bailey, run simulations and various aspects of the analysis, significant contribution to paper writing;
2. R. WISEMAN, **M. VINCENZI**, AND DES COLLABORATION, *A galaxy-driven model of type Ia supernova luminosity variations*, MNRAS, 515 (2022), pp. 4587–4605.
- Contributed to the development of the model, run part of the simulations and provided tools to measure bias-corrected Hubble residuals for data and sims;
3. **M. VINCENZI** ET AL., *The Dark Energy Survey Supernova Program: Cosmological biases from supernova photometric classification*, MNRAS, (2022).
- Led all aspects of the analysis and wrote the paper;
4. C. FROHMAIER, C. R. ANGUS, **M. VINCENZI**, ET AL., *From core collapse to superluminous: the rates of massive stellar explosions from the Palomar Transient Factory*, MNRAS, 500 (2021), pp. 5142–5158.
- Run core-collapse simulations and test survey efficiency, contributed to paper writing;
5. **M. VINCENZI** ET AL., *The Dark Energy Survey Supernova Programme: modelling selection efficiency and observed core-collapse supernova contamination*, MNRAS, 505 (2021), pp. 2819–2839.
- Led all aspects of the analysis and wrote the paper;
6. **M. VINCENZI** ET AL., *Spectrophotometric templates for core-collapse supernovae and their application in simulations of time-domain surveys*, MNRAS, 489 (2019), pp. 5802–5821.
- Led all aspects of the analysis and wrote the paper;

Other Publications

7. M. LOKKEN, A. GAGLIANO, AND LSST DARK ENERGY SCIENCE COLLABORATION **INCL. M. VINCENZI**, *The Simulated Catalogue of Optical Transients and Correlated Hosts (SCOTCH)*, arXiv e-prints, (2022), p. arXiv:2206.02815.
- Provided input files and support to run simulations, helped with the review of the manuscript;
8. D. BROUT AND PANTHEON+ TEAM **INCL. M. VINCENZI**, *The Pantheon+ Analysis: Cosmological Constraints*, ApJ, 938 (2022), p. 110.
- Contributed to the analysis related to systematic uncertainties associated with calibration and light-curve fitting, provided comments;
9. L. KELSEY AND DES COLLABORATION, **INCL. M. VINCENZI**, *Concerning Colour: The Effect of Environment on Type Ia Supernova Colour in the Dark Energy Survey*, arXiv e-prints, (2022), p. arXiv:2208.01357.
- Contributed to data curation, SN classification and modelling of selection bias effects. Provided comments to the manuscript;
10. R. CHEN AND DES COLLABORATION, **INCL. M. VINCENZI**, *Measuring Cosmological Parameters with Type Ia Supernovae in redMaGiC galaxies*, ApJ, 938 (2022), p. 62.
- Provided input files and support to run simulations needed for the analysis, helped with the review of the manuscript;

11. A. MOLLER AND DES COLLABORATION **INCL. M. VINCENZI**, *The Dark Energy Survey 5-year photometrically identified Type Ia Supernovae*, MNRAS, 514 (2022), pp. 5159–5177.
- Contributed to improve the code used to produce the DES sample and helped with the testing, helped with revision of the manuscript;
12. D. BROUT AND PANTHEON+ TEAM, **INCL. M. VINCENZI**, *The Pantheon+ Analysis: SuperCal-Fragilistic Cross Calibration, Retrained SALT2 Light Curve Model, and Calibration Systematic Uncertainty*, ApJ, 938 (2022), p. 111.
- Contributed to part of the analysis and provided Fig 5 and Table 4;
13. M. GRAYLING AND DES COLLABORATION **INCL. M. VINCENZI**, *Understanding the extreme luminosity of DES14X2fna, submitted to MNRAS*, (2021).
- Provided simulations of DES14X2fna-like events, run photometric classifier on them and evaluated performances, helped with revision of the manuscript;
14. M. SMITH AND DES COLLABORATION, **INCL. M. VINCENZI**, *First cosmology results using type Ia supernovae from the Dark Energy Survey: the effect of host galaxy properties on supernova luminosity*, MNRAS, 494 (2020), pp. 4426–4447.
- Provided comments to the manuscript;
15. P. WISEMAN AND DES COLLABORATION, **INCL. M. VINCENZI**, *Supernova host galaxies in the dark energy survey: I. Deep coadds, photometry, and stellar masses*, MNRAS, 495 (2020), pp. 4040–4060.
- Provided comments to the manuscript;
16. G. ALDERING AND SNFACTORY COLLABORATION **INCL. M. VINCENZI**, *The SNEMO and SUGAR Companion Data Sets*, Research Notes of the American Astronomical Society, 4 (2020), p. 63.
- Contributed to the development of the data processing pipeline, and provided comments;
17. C. SAUNDERS AND SNFACTORY COLLABORATION **INCL. M. VINCENZI**, *SNEMO: Improved Empirical Models for Type Ia Supernovae*, ApJ, 869 (2018), p. 167.
- Contributed to the development of the data processing pipeline, and provided comments;

In collaboration internal review and in preparation

18. **M. VINCENZI** ET AL., *The Dark Energy Survey Supernova Program: cosmological analysis, systematic uncertainties, and validation*, (expected 2023).
- In DES Supernova Working Group Review, leading the analysis and curating the paper writing;
19. C. FROHMAIER, **M. VINCENZI**, AND LSST DARK ENERGY SCIENCE COLLABORATION, 4MOST COLLABORATION, *TiDES – The 4MOST Time Domain Extragalactic Survey*, (expected 2023).
- In DESC and 4MOST Collaboration Internal Review. Run LSST simulations and run cosmology pipeline to predict dark energy cosmological constraints from LSST+TiDES, significant contribution to paper writing;
20. R. HOUNSEL, M. SAKO, **M. VINCENZI**, ET AL., *Core collapse SN templates from the Dark Energy Survey*, (expected 2023).
- Run all the simulations needed in the analysis, and tested the agreement between simulations and data;
21. B. POPOVIC, D. SCOLNIC, **M. VINCENZI**, ET AL., *Pasdronomy: Cosmological constraints from the joint SDSS+PS1 photometric sample*, (expected 2023).
- Provided simulations for contamination and support for the implementation of classifiers and various steps of the analysis.