



## Sergio Martin Alvarez

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### Bio

#### ACADEMIC APPOINTMENTS

- Physical Science Research Scientist, Kavli Institute for Particle Astrophysics and Cosmology

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### Publications

#### PUBLICATIONS

- **The universality of the relation between magnetic fields and star formation in galaxies** *ASTRONOMY & ASTROPHYSICS*  
Belfiori, D., Martin-Alvarez, S., Lopez-Rodriguez, E., Paladino, R.  
2026; 707
- **The Pandora project - II. How non-thermal physics drives bursty star formation and temperate mass-loaded outflows in dwarf galaxies** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
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- **Jellyfish Galaxies in Magnetic Fields: Insights from Numerical Simulations** *ASTROPHYSICAL JOURNAL*  
Lee, J., Kimm, T., Blaizot, J., Devriendt, J., Martin-Alvarez, S., Rhee, J., Rey, M., Slyz, A.  
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- **On the rapid growth of SMBHs in high-z galaxies: the aftermath of Population III.1 stars** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Sanati, M., Devriendt, J., Martin-Alvarez, S., Slyz, A., Tan, J. C.  
2025; 544 (4): 4317-4335
- **Extended red wings and the visibility of reionization-epoch Lyman- $\alpha$  emitters** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Yuan, Y., Martin-Alvarez, S., Haehnelt, M. G., Garel, T., Keating, L., Witstok, J., Sijacki, D.  
2025; 542 (2): 762-789
- **The emergence and ionizing feedback of Pop III.1 stars as progenitors for supermassive black holes** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Sanati, M., Tan, J. C., Devriendt, J., Slyz, A., Martin-Alvarez, S., la Torre, M., Keller, B., Petkova, M. A., Monaco, P., Cammelli, V., Singh, J., Hayes, M.  
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- **Constraints on Primordial Magnetic Fields from the Lyman- $\alpha$  Forest.** *Physical review letters*  
Pavičević, M., Iršič, V., Viel, M., Bolton, J. S., Haehnelt, M. G., Martin-Alvarez, S., Puchwein, E., Ralegankar, P.  
2025; 135 (7): 071001
- **Constraints on Primordial Magnetic Fields from the Lyman- $\alpha$  Forest** *PHYSICAL REVIEW LETTERS*  
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2025; 135 (7)

- **PRIMA Vista: far-infrared polarimetry to unveil small-scale magnetohydrodynamics in extragalactic observations** *JOURNAL OF ASTRONOMICAL TELESCOPES INSTRUMENTS AND SYSTEMS*  
Maglione, D., Martin-Alvarez, S., Lopez-Rodriguez, E., Clark, S. E., Karpovich, K.  
2025; 11 (3)
- **The impact of cosmic ray feedback during the epoch of reionisation** *ASTRONOMY & ASTROPHYSICS*  
Farcy, M., Rosdahl, J., Dubois, Y., Blaizot, J., Martin-Alvarez, S., Haehnelt, M., Kimm, T., Teysier, R.  
2025; 698
- **Stirring the cosmic pot: how black hole feedback shapes the matter power spectrum in the <sc>fable</sc> simulations** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
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Dacunha, T., Martin-Alvarez, S., Clark, S. E., Lopez-Rodriguez, E.  
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- **Increased burstiness at high redshift in multiphysics models combining supernova feedback, radiative transfer, and cosmic rays** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
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- **Dwarf galaxies as a probe of a primordially magnetized Universe** *ASTRONOMY & ASTROPHYSICS*  
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- **Ly $\alpha$  emission as a sensitive probe of feedback-regulated LyC escape from dwarf galaxies** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
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- **The Pandora project - I. The impact of radiation, magnetic fields, and cosmic rays on the baryonic and dark matter properties of dwarf galaxies** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Martin-Alvarez, S., Sijacki, D., Haehnelt, M. G., Farcy, M., Dubois, Y., Belokurov, V., Rosdahl, J., Lopez-Rodriguez, E.  
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- **Extragalactic Magnetism with SOFIA (SALSA Legacy Program). V. First Results on the Magnetic Field Orientation of Galaxies** *ASTROPHYSICAL JOURNAL*  
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- **Extragalactic Magnetism with SOFIA (SALSA Legacy Program). III. First Data Release and On-the-fly Polarization Mapping Characterization\*** *ASTROPHYSICAL JOURNAL*  
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- **Extragalactic Magnetism with SOFIA (SALSA Legacy Program). IV. Program Overview and First Results on the Polarization Fraction\*** *ASTROPHYSICAL JOURNAL*  
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- **Towards convergence of turbulent dynamo amplification in cosmological simulations of galaxies** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
Martin-Alvarez, S., Devriendt, J., Slyz, A., Sijacki, D., Richardson, M. L. A., Katz, H.  
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- **Momentum deposition of supernovae with cosmic rays** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
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- **The nature of high [O III](88) (mu) (m)/[C II](158) (mu m) galaxies in the epoch of reionization: Low carbon abundance and a top-heavy IMF?** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
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- **Introducing SPHINX-MHD: the impact of primordial magnetic fields on the first galaxies, reionization, and the global 21-cm signal** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*  
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2021; 504 (2): 2517-2534
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- **How primordial magnetic fields shrink galaxies** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*

Martin-Alvarez, S., Slyz, A., Devriendt, J., Gomez-Guijarro, C.

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- **Compact Star-forming Galaxies as Old Starbursts Becoming Quiescent** *ASTROPHYSICAL JOURNAL*

Gomez-Guijarro, C., Magdis, G. E., Valentino, F., Toft, S., Man, A. S., Ivison, R. J., Tisanic, K., van der Vlugt, D., Stockmann, M., Martin-Alvarez, S., Brammer, G.

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- **Magnetogenesis at Cosmic Dawn: tracing the origins of cosmic magnetic fields** *MONTHLY NOTICES OF THE ROYAL ASTRONOMICAL SOCIETY*

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- **On the interplay between cosmological shock waves and their environment** *ASTROPHYSICS AND SPACE SCIENCE*

Martin-Alvarez, S., Planelles, S., Quilis, V.

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