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9 November 2026

Shahin Jafarzadeh

Academic Profile/Interests

- Solar astrophysicist and data scientist, specialising in advanced data analysis, image processing, and mixed-method research methodologies
- Expert in magnetic-field diagnostics and magnetohydrodynamic wave studies in the lower solar atmosphere, with applications to coronal heating and solar–terrestrial coupling (space weather)
- Experienced observational astronomer with extensive work in solar spectro-polarimetry and spectroscopy/imaging, particularly using the Swedish 1-m Solar Telescope (SST), and skilled in analysing high-resolution data from ground-based, space, and balloon-borne facilities
- Interdisciplinary researcher, integrating astrophysics, plasma physics, mathematics, computer science, and instrumentation
- Experienced in applied machine-learning and physics-informed methods to extract physical parameters from complex observations and simulations

Higher Education

01/2010–06/2013 Dr.rer.nat. (PhD), Astronomy with Solar Physics, *summa cum laude*
Institute for Astrophysics, Georg August University of Göttingen, Germany
Dissertation: Dynamics of magnetic bright points in the lower solar atmosphere

01/2007–04/2009 M.Sc., Astronomy and Astrophysics
Lund Observatory, Lund University, Sweden
Thesis: Detection of faint stars near Gaia objects

09/1996–03/2001 B.Sc., Physics with Astronomy
Biruni Observatory, Shiraz University, Iran
Thesis: Photoelectric observations, light curve analysis and period study of eclipsing variable DO Cas

Professional Affiliations/Memberships

- Member, International Astronomical Union (IAU)
- Member, European Astronomical Society (EAS)

Research/Work Experience

12/2024–present	Research Fellow, **Queen's University Belfast**, Northern Ireland, UK
09/2024–present	Guest Scientist, Max Planck Institute for Solar System Research, Germany
09/2021–present	Guest Researcher, Rosseland Centre for Solar Physics (RoCS), Norway
01/2024–02/2025	Guest Researcher, Niels Bohr International Academy, Niels Bohr Institute, Denmark
06/2022–09/2024	Research Scientist, Max Planck Institute for Solar System Research, Germany
02/2022–05/2022	Scientist (Tenure Track), Leibniz Institute for Solar Physics (KIS), Germany
09/2021–01/2022	Research Scientist, Max Planck Institute for Solar System Research, Germany
12/2016–08/2021	Researcher, Rosseland Centre for Solar Physics, Institute of Theoretical Astrophysics, University of Oslo, Norway
12/2013–11/2016	Postdoctoral Research Fellow, Institute of Theoretical Astrophysics, University of Oslo, Norway
07/2013–11/2013	Postdoctoral Research Fellow, Max Planck Institute for Solar System Research, Germany
01/2010–06/2013	PhD Research Fellow, Max Planck Institute for Solar System Research, Germany
03/2011–03/2012	Teaching Assistant, Faculty of Physics, Georg August University of Göttingen, Germany (Courses: Statistical mechanics, Practical astrophysics)
06/2009–12/2009	USO-SP Marie Curie Research Fellow, Institute of Theoretical Astrophysics, University of Oslo, Norway
08/2007–10/2007	Student Support Astronomer, Swedish 1–m Solar Telescope (SST), La Palma, Spain (Employer: Royal Swedish Academy of Sciences, Sweden)

Observing Experience

2007–present	Solar Spectro-polarimetry/-Imaging at SST (Swedish Solar Telescope; La Palma, Canary islands, Spain): more than 200 days
05/2015	Solar Spectro-polarimetry/-Imaging at GREGOR (Tenerife, Canary islands, Spain)
06/2010	Solar Imaging at DOT (Dutch Open Telescope; La Palma, Canary islands, Spain)
2008	Stellar Spectrometry at NOT (Nordic Optical Telescope)
1998–2008	Stellar Photometry at Biruni and Moletai Observatories: more than 80 nights
1994–present	CCD Imaging and Amateur Astronomy Observations

Honours/Fellowships/Awards

2026	Research Award 2026 – Faculty of Engineering and Physical Sciences, Queen's University Belfast

2026 The UK's Science and Technology Facilities Council (STFC) Astronomy solar and planetary studies small awards 2025 – UK Research and Innovation 5116: Investigating the wave-driven physics of sunspots using novel balloon observations – Award value: £433,670

2026 PI, Funding award for a 1-week meeting of the Waves in the Lower Solar Atmosphere (WaLSA; www.WaLSA.team) Team; funded by the Max Planck Institute for Solar System Research through its Guest Investigator programme

2024 PI, Funding award for a 1-week meeting of the Waves in the Lower Solar Atmosphere (WaLSA; www.WaLSA.team) Team; funded by the Research Council of Norway through its Centres of Excellence scheme, project number 262622 – the Rosseland Centre for Solar Physics

2021-2023 Co-I, International Space Science Institute (ISSI) Team award on Waves in the Lower Solar Atmosphere (WaLSA; www.WaLSA.team), to hold a series of 2-3 one-week team meetings over a period of two years at ISSI in Bern, Switzerland

2019 Co-I, The Royal Society award for a Theo Murphy international meeting of the Waves in the Lower Solar Atmosphere (WaLSA; www.WaLSA.team) Team in 2020

2019 Public Outreach Award 2019 – for the enthusiasm and commitment in promoting astronomy to the public, Institute of Theoretical Astrophysics, University of Oslo

2019 PI, funding award for organisation of Astronomy Olympiad in Norway, Research Council of Norway

2018 PI, Rosseland International Team's award for two 1-week meetings of the Waves in the Lower Solar Atmosphere (WaLSA; www.WaLSA.team) Team; funded by the Research Council of Norway through its Centres of Excellence scheme, project number 262622 – the Rosseland Centre for Solar Physics

2015 and 2016 Co-I, SOLARNET awards for Observing Campaigns at 'GREGOR Observatory (Tenerife, Canary islands, Spain)', and 'DST/NSO (Sacramento Peak, New Mexico, USA)'

European Commission's FP7 Capacities Program (Grant nr. 312495)

2010–2013 Ph.D. Fellowship, Katlenburg-Lindau, Germany

International Max Planck Research School (IMPRS) on Physical Processes in the Solar System and Beyond

2009 USO-SP Marie Curie Research Fellowship, Oslo, Norway

Marie Curie Early Stage Research Training Fellowship of the European Community's Sixth Framework Programme (contract nr. MEST-CT-2005-020395)

2007 Support Astronomer Scholarship, La Palma, Spain

Royal Swedish Academy of Sciences

Scholarly Contributions

SciX/ADS list of publications (short URL): https://shahin.website/ads

Peer-Reviewed Publications

Total refereed publications: **89**

h index **27** (SciX/ADS)

- **Jafarzadeh, S.**, Jess, D. B., Stangalini, M., Fletcher, L., Milligan, R. O., Simões, P. J. A., Keys, P. H., Solanki, S. K., Smitha, H. N., Lagg, A., Gandorfer, A., Feller, A., Iglesias, F. A., Riethmüller, T. L., et al. 2026, *The Astrophysical Journal Letters*, 1010, L34: Delayed, Line-dependent Reorganization of Pore Oscillations Following a Compact C8.2 Flare Observed by Sunrise III/SUSI | SciX/ADS | **PDF**
- Li, X., Smitha, H. N., Solanki, S. K., Riethmüller, T. L., Chitta, L. P., **Jafarzadeh, S.** 2026, *Astronomy & Astrophysics*, 715, A65: Nature of small-scale Ca II H brightenings associated with weak fields in a quiet Sun region | SciX/ADS | **PDF**
- Silva, S. S. A, Dakanalis, G., Schiavo, L. A. C. A., Tziotziou, K., **Jafarzadeh, S.**, Pereira, T. M. D., Tsiropoula, G., Verth, G., Ballai, I., Esnaola, I., McLaughlin, J. A., Botha, G. J. J., Fedun, V. 2026, *The Astrophysical Journal*, in press: Solar Vortices as Conduits for Magnetoacoustic Waves: Multi-Layer Coupling and Their Role in Atmospheric Heating | SciX/ADS | **PDF**
- Fischer, C. E., Wöger, F., Vigeesh, G., Keys, P. H., Steiner, O., Canivete Cuissa, J. R., **Jafarzadeh, S.**, Erdélyi, R., Jess, D. B., Mathioudakis, M., Tritschler, A., Christian, D. J., Fehlmann, A., Jaeggli, S., Rimmele, T. 2026, *The Astrophysical Journal*, 1010, 85: The Daniel K. Inouye Solar Telescope Captures Ambient Shock Waves Ignited by Magnetic Vortices | SciX/ADS | **PDF**
- **Jafarzadeh, S.**, Jess, D.B., Stangalini, M., Fleck, B., Morton, R.J., Grant, S.D.T., Keys, P.H., Rouppe van der Voort, L., Wedemeyer, S., Pereira, T.M.D., Szydlarski, M., Udnæs, E.R., Wiegelmann, T., Roth, M. 2026, *Astronomy & Astrophysics*, 714, A147: The umbrella effect: magnetic canopy topology modulates spatially averaged chromospheric three-minute power | SciX/ADS | **PDF**
- Silva, S. S. A., Dakanalis, I., Tziotziou, K., Siu-Tapia, A. L., **Jafarzadeh, S.**, Turkay, S. S., Fedun, V., Solanki, S. K., Lagg, A., Gandorfer, A., del Toro Iniesta, J. C., Katsukawa, Y., Bernasconi, P., Berkefeld, T. et al. 2026, *The Astrophysical Journal Letters*, 1008, L47: Observational Evidence of Vortex-Driven Information Transfer in the Solar Atmosphere: Insights from Sunrise III | SciX/ADS | **PDF**
- Duckenfield, T., Jess, D. B., **Jafarzadeh, S.**, Rouppe van der Voort, L., Henriques, V. 2026, *Frontiers in Astronomy and Space Sciencess*, in press: Formation-height diagnostics across a sunspot: a comparison of Lightweaver radiative transfer and NICOLE inversions using the Ca II 8542 Å line | SciX/ADS | **PDF**
- Lagg, A., Smitha, H. N., Solanki, S. K., Riethmüller, T. L., Gandorfer, A., Feller, A., Iglesias, F. A., Siu-Tapia, A. L., del Toro Iniesta, J. C., Katsukawa, Y., Bernasconi, P., Berkefeld, T., Kubo, M., Orozco Suárez, D., Cameron, R., Schou, J., Przybylski, D., Álvarez-Herrero, A., Grauf, B., Carpenter, M., Bell, A., Martínez Pillet, V., **Jafarzadeh, S.**, et al. 2026, *The Astrophysical Journal Letters*, 1007, L27: Height Dependent Phase Shifts of Wave Pulses in the Lower Solar Atmosphere Measured with Sunrise III | SciX/ADS | **PDF**
- **Jafarzadeh, S.**, Jess, D. B., Stangalini, M., Schiavo, L. A. C. A., Duckenfield, T. J., Silva, S. S. A., Verth, G., Fedun, V., Solanki, S. K., Smitha, H. N., Lagg, A., Gandorfer, A., Feller, A., Iglesias, F. A., et al. 2026, *The Astrophysical Journal Letters*, 1005, L81: Multi-height Identification of Sausage and Fluting Eigenmodes in a Solar Pore | SciX/ADS | **PDF**

- Chambers, G., Jess, D. B., **Jafarzadeh, S.**, Berretti, M., Grant, S. D. T., Stangalini, M., Smitha, H. N., Christian, D. J., et al. 2026, *Frontiers in Astronomy and Space Sciences*, 13, 1826789: Standing oscillations in a resonant sunspot atmosphere captured by integral field spectroscopy | SciX/ADS | **PDF**

- Grant, S. D. T., Berretti, M., Chambers, G., Jess, D. B., Stangalini, M., **Jafarzadeh, S.**, Smitha, H. N., Berrilli, F. 2026, *Frontiers in Astronomy and Space Sciences*, 13, 1812284: Probing oscillations in the lower solar atmosphere with the FRANCIS integral field unit | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Jess, D. B., Stangalini, M., Keys, P. H., Chambers, G., Grant, S. D. T., Berretti, M., Duckenfield, T. J. 2026, *Frontiers in Astronomy and Space Sciences*, 13, 1843842: Adaptive multi-line fitting for stable line-core intensity and Doppler velocity | SciX/ADS | **PDF**

- Skirvin, S. J., Grant, S., Jess, D. B., Campbell, R. J., **Jafarzadeh, S.**, Kontiainen, M. V., Berretti, M., Duckenfield, T. J., Chambers, G., Stangalini, M., Rouppe van der Voort, L. 2026, *Frontiers in Astronomy and Space Sciences*, 13, 1814323: The Influence of Opacity on Inferred MHD Wave Signatures in the Lower Solar Atmosphere | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Jess, D. B., Stangalini, M., Keys, P. H., Grant, S. D. T., Duckenfield, T. J., Chambers, G., Solanki, S. K., Smitha, H. N., Lagg, A., Gandorfer, A., Feller, A., Iglesias, F. A., Riethmüller, T., et al. 2026, *The Astrophysical Journal Letters*, 1005, L65: Magnetically Structured Oscillatory Power Along an Active-Region Transect in Near-UV Sunrise-III/SUSI Spectroscopy | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Jess, D. B., Stangalini, M., Morton, R. J., Felipe, T., Berretti, M., Solanki, S. K., Smitha, H. N., Lagg, A., Gandorfer, A., Feller, A., Iglesias, F. A., Riethmüller, T. L., Grauf, B., Hoelken, J., et al. 2026, *The Astrophysical Journal Letters*, 1005, L69: Multi-line Wave Signatures in a Sunspot from Near-UV Sunrise III/SUSI Observations | SciX/ADS | **PDF**

- Berretti, M., Stangalini, M., Jess, D. B., **Jafarzadeh, S.**, Grant, S. D. T., Verth, G., Fedun, V., Chambers, G., Berrilli, F. 2026, *The Astrophysical Journal*, 997, 197: Can Instrumental Effects Obscure the True Photospheric Wave Spectrum? | SciX/ADS | **PDF**

- Keys, P. H., Campbell, R. J., Magill, D. K. J., Keating, M. A., Mathioudakis, M., Jess, D. B., Christian, D. J., Berberyan, A., Grant, S. D. T., **Jafarzadeh, S.**, Stangalini, M., Erdélyi, R. 2026, *The Astrophysical Journal*, 999, 201: Small-scale bright point characteristics at high-resolution with the Daniel K. Inouye Solar Telescope | SciX/ADS | **PDF**

- Berretti, M., Stangalini, M., Verth, G., Fedun, V., **Jafarzadeh, S.**, Jess, D. B., Berrilli, F. 2025, *Astronomy & Astrophysics*, 697, A156: Umbral oscillations in the photosphere. A comprehensive statistical study | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Jess, D. B., Stangalini, M., Grant, S. D. T., Higham, J. E., Pessah, M. E., Keys, P. H., Belov, S., Calchetti, D., Duckenfield, T. J., Fedun, V., Fleck, B., Gafeira, R., Jefferies, S. M., Khomenko, E., Morton, R. J., Norton, A. A., Rajaguru, S. P., Schiavo, L. A. C. A., Sharma, R., Silva, S. S. A., Solanki, S. K., Steiner, O., Verth, G., Vigeesh, G., Yadav, N. 2025, *Nature Reviews Methods Primers*, 5, 21: Wave analysis tools | SciX/ADS | **PDFs:** Main Article & Supplementary Information

- Duckenfield, T. J., Jess, D. B., Morton, R. M., **Jafarzadeh S.** 2025, *The Astrophysical Journal*, 982, 202: Determining the polarisation of a coronal standing kink oscillation using spectral imaging techniques with CoMP | SciX/ADS | **PDF**

- Stangalini, M., Verth, G, Fedun, V., Perrone, D., Berretti, M., Bushby, P., **Jafarzadeh, S.**, Jess, D. B., Giannattasio, F., Keys, P. H., Bruno, R., Berrilli, F. 2025, *Astronomy & Astrophysics Letters*, 695, L11: The dynamics of small-scale magnetic fields modulated by the solar cycle | SciX/ADS | **PDF**

- Berretti, M., Stangalini, M., Mestici, S., Jess, D. B., **Jafarzadeh, S.**, Berrilli, F. 2025, *Astronomy & Astrophysics*, 693, A71: SoFT: Detecting and Tracking Magnetic Structures in the Solar Photosphere | SciX/ADS | **PDF**

- Saberi, M., **Jafarzadeh, S.**, Wedemeyer, S., Gafeira, R., Szydlarski, M., Jess, D. B., Stangalini, M. 2025, *Astronomy & Astrophysics*, 693, A19: The Sun at millimeter wavelengths. V. Magnetohydrodynamic waves in a fibrillar structure | SciX/ADS | **PDF**

- Berretti, M., Stangalini, M., Verth, G., **Jafarzadeh, S.**, Jess, D. B., Berrilli, F., Grant, S. D. T., Duckenfield, T., Fedun, V. 2024, *Astronomy & Astrophysics*, 687, L21: Unexpected frequency of horizontal oscillations of magnetic structures in the solar photosphere | SciX/ADS | **PDF**

- Bate W., Jess D. B., Grant, S. D. T., Hillier, A., Skirvin, S. J., van Doorsselaere, T., **Jafarzadeh, S.**, Wiegelmann, T., Duckenfield, T., Beck, C., Moore, T., Stangalini, M., Keys, P. H., Christian, D. J. 2024, *The Astrophysical Journal*, 970, 66: Unveiling the True Nature of Plasma Dynamics from the Reference Frame of a Super-penumbral Fibril | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Schiavo, L. A. C., Fedun, V., Solanki, S. K., Stangalini, M., Calchetti, D., Verth, G., Jess, D. B., Grant, S. D. T., Ballai, I., Gafeira, R., Keys, P. H., Fleck, B., Morton, R. J., et al. 2024, *Astronomy & Astrophysics*, 688, A2: Sausage, kink, and fluting MHD wave modes identified in solar magnetic pores by Solar Orbiter/PHI | SciX/ADS | **PDF**

- Murabito, M., Stangalini, M., Laming, J. M., Baker, D., To, A. S. H., Long, D. M., Brooks, D. H., **Jafarzadeh, S.**, Jess, D. B., Valori, G. 2024, *Physical Review Letters*, 132, 215201: Observation of Alfvén wave reflection in the solar chromosphere: Ponderomotive force and first ionization potential effect | SciX/ADS | **PDF** | SM

- Silva, S. S. A., Verth, G., Rempel, E. L., Ballai, I., **Jafarzadeh, S.**, Fedun, V. 2024, *The Astrophysical Journal*, 963,10: Magnetohydrodynamic Poynting Flux Vortices in the Solar Atmosphere and Their Role in Concentrating Energy | SciX/ADS | **PDF**

- Jess, D. B., Grant, S. D. T., Bate, W., Liu, J., **Jafarzadeh, S.**, Keys, P. H., Vieira, L. E. A., Dal Lago, A., Guarnieri, F. L., Christian, D. J., Gilliam, D., Banerjee, D. 2023, *Solar Physics*, 298, 146: The Fibre Resolved opticAl and Near-ultraviolet Czerny-Turner Imaging Spectropolarimeter (FRANCIS) | SciX/ADS | **PDF**

- Calchetti, D., Stangalini, M., **Jafarzadeh, S.**, Valori, G., et al. 2023, *Astronomy & Astrophysics*, 674, A109: Spectropolarimetric investigation of magnetohydrodynamic wave modes in the photosphere: First results from PHI on board Solar Orbiter | SciX/ADS | **PDF**

- Murabito, M., Ermolli, I., Chatzistergos, T., **Jafarzadeh, S.**, Giorgi, F., Rouppe van der Voort, L. 2023, *The Astrophysical Journal*, 947, 18: Investigating the effect of solar ambient and data characteristics on Ca II K observations and line profile measurements | SciX/ADS | **PDF**

- Guevara Gómez, J. C., **Jafarzadeh, S.**, Wedemeyer, S., Grant, S. D. T., Eklund, H., Szydlarski M. 2023, *Astronomy & Astrophysics*, 671, A69: The Sun at millimeter wavelengths. IV. Magnetohydrodynamic waves in small-scale bright features | SciX/ADS | **PDF**

- Jess, D. B., **Jafarzadeh, S.**, Keys, P. H., Stangalini, M., Verth, G., Grant, S. D. T. 2023, *Living Reviews in Solar Physics*, 20, 1: Waves in the lower solar atmosphere: the dawn of next-generation solar telescopes | SciX/ADS | **PDF** | **ePDF**

- Grant, S. D. T., Jess, D. B., Stangalini, M., **Jafarzadeh, S.**, Fedun, V., Verth, G., Keys, P. H., Rajaguru, S. P., Uitenbroek, H., Macbride, C. D., Bate, W., Gilchrist-Millar, C. A. 2022, *The Astrophysical Journal*, 938, 143: The Propagation of Coherent Waves Across Multiple Solar Magnetic Pores | SciX/ADS | **PDF**

- Nindos, A., Patsourakos, S., **Jafarzadeh, S.**, Shimojo, M. 2022, *Frontiers in Astronomy and Space Sciences*, 9, 981205: The dynamic chromosphere at millimeter wavelengths | SciX/ADS | **PDF** | **ePDF**

- Guevara Gómez, J. C., **Jafarzadeh, S.**, Wedemeyer, S., Szydlarski M. 2022, *Astronomy & Astrophysics*, 665, L2: Propagation of transverse waves in the solar chromosphere probed at different heights with ALMA sub-bands | SciX/ADS | **PDF**

- Ledvina, V. E., Kazachenko, M. D., Criscuoli, S., Tilipman, D., Ermolli, I., Falco, M., Guglielmino, S., **Jafarzadeh, S.**, Rouppe van der Voort, L., Zuccarello, F. 2022, *The Astrophysical Journal*, 934, 38: Quantifying Properties of Photospheric Magnetic Cancellations in the Quiet Sun Internetwork | SciX/ADS | **PDF**

- Bate, W., Jess, D. B., Nakariakov, V. M., Grant, S. D. T., **Jafarzadeh, S.**, Stangalini, M., Keys, P. H., Christian, D. J., Keenan, F. P. 2022, *The Astrophysical Journal*, 930, 129: High-Frequency Waves in Chromospheric Spicules | SciX/ADS | **PDF**

- Narang, N., Chandrashekhar, K., **Jafarzadeh, S.**, Fleck, B., Szydlarski, M., Wedemeyer, S. 2022, *Astronomy & Astrophysics*, 661, A95: Power distribution of oscillations in the atmosphere of a plage region: Joint observations with ALMA, IRIS and SDO | SciX/ADS | **PDF**

- Silva, S. S. A., Murabito, M., **Jafarzadeh, S.**, Stangliani, M., Verth, G., Ballai, I., Fedun, V. 2022, *The Astrophysical Journal*, 927, 146: The Importance of Horizontal Poynting Flux in the Solar Photosphere | SciX/ADS | **PDF**

- Henriques, V. M. J., **Jafarzadeh, S.**, Guevara Gómez, J. C., Eklund, H., Wedemeyer, S., Szydlarski, M., Haugan, S. V. H., Mohan, A. 2022, *Astronomy & Astrophysics*, 659, A31: The Solar ALMA Science Archive (SALSA). First release, SALAT and FITS header standard | SciX/ADS | **PDF**

- Stangalini, M., Verth, G., Fedun, V., Aldhafeeri, A. A., Jess, D. B., **Jafarzadeh, S.**, Keys, P. H., Fleck, B., Terradas, J., Murabito, M., Ermolli, I., Soler, R., Giorgi, F., MacBride, C. D. 2022, *Nature Communications*, 13, 479: Large scale coherent magnetohydrodynamic oscillations in a sunspot | SciX/ADS | **PDF**

- Murabito, M., Stangalini, M., Baker, D., Valori, G., Jess, D. B., **Jafarzadeh, S.**, Brooks, D. H., Ermolli, I., Giorgi, F., Grant, S. D. T., Long, D. M., van Driel-Gesztelyi, L. 2021, *Astronomy & Astrophysics*, 656, A87: Investigating the origin of magnetic perturbations associated with the FIP Effect | SciX/ADS | **PDF**

- Eklund, H., Wedemeyer, S., Szydlarski, M., **Jafarzadeh, S.** 2021, *Astronomy & Astrophysics*, 656, A68: The Sun at millimeter wavelengths. III. Impact of the spatial resolution on solar ALMA observations | SciX/ADS | **PDF**

- Murabito, M., Guglielmino, S. L., Ermolli, I., Romano, P., **Jafarzadeh, S.**, Rouppe van der Voort, L. H. M. 2021, *Astronomy & Astrophysics*, 653, A93: Penumbral decay observed in active region NOAA 12585 | SciX/ADS | **PDF**

- Stangalini, M., Jess, D. B., Verth, G., Fedun, V., Fleck, B., **Jafarzadeh, S.**, Keys, P. H., Murabito, M., Calchetti, D., Aldhafeeri, A. A., Berrilli, F.,Del Moro, D., Jefferies, S. M., Terradas, J., Soler, R. 2021, *Astronomy & Astrophysics*, 649, A169: A novel approach to identify resonant MHD wave modes in solar pores and sunspot umbrae: B–ω analysis | SciX/ADS | **PDF**

- Rast, M. P., Bello González, N., Bellot Rubio, L., Cao, W., Cauzzi, G., DeLuca, E., De Pontieu, B., Fletcher, L., Gibson, S. E., Judge, P. G., Katsukawa, Y., Kazachenko, M. D., Khomenko, E., Landi, E., Martínez Pillet, V., Petrie, G. J. D., Qiu, J., Rachmeler, L. A., Rempel, M., Schmidt, W. Scullion, E., Sun, X., Welsch, B. T., Andretta, V., Antolin, P., Ayres, T. R., Balasubramaniam, K. S., Ballai, I., Berger, T. E., Bradshaw, S. J., Carlsson, M., Casini, R., Centeno, R., Cranmer, S. R., DeForest, C., Deng, Y., Erdélyi, R., Fedun, V., Fischer, C. E., González M., Sergio J., Hahn, M., Harra, L., Henriques, V. M. J., Hurlburt, N. E., Jaeggli, S., **Jafarzadeh, S.** et. al. 2021, *Solar Physics*, 296, 70: Critical Science Plan for the Daniel K. Inouye Solar Telescope (DKIST) | SciX/ADS | **PDF**

- Viavattene, G., Murabito, M., Guglielmino, S. L., Ermolli, I., Consolini G., Giorgi, F., **Jafarzadeh, S.** 2021, *Entropy*, 23, 413: Analysis of Pseudo-Lyapunov Exponents of Solar Convection Using State-of-the-Art Observations | SciX/ADS | **PDF**

- Baker, D., Stangalini, M., Valori, G., Brooks, D. H., To, A. S. H., van Driel-Gesztelyi, L., Demoulin, P., Stansby, D., Jess, D. B., **Jafarzadeh, S.** 2021, *The Astrophysical Journal*, 907, 16: Alfvénic Perturbations in a Sunspot Chromosphere Linked to Fractionated Plasma in the Corona | SciX/ADS | **PDF**

- Chintzoglou, G., De Pontieu, B., Martínez-Sykora, J., Hansteen, V., de la Cruz Rodríguez, J., Szydlarski, M., **Jafarzadeh, S.**, Wedemeyer, S., Bastian, T. S., Saínz Dalda, A. 2021b, *The Astrophysical Journal*, 906, 83: ALMA and IRIS Observations of the Solar Chromosphere II: Structure and Dynamics of Chromospheric Plage | SciX/ADS | **PDF**

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- Gafeira, R., **Jafarzadeh, S.**, Solanki, S. K., Lagg, A., van Noort, M., Barthol, P., & Blanco Rodriguez, J., et al. 2017, *The Astrophysical Journal Supplement Series*, 229, 7: Oscillations on width and intensity of slender Ca II H fibrils from Sunrise/SuFI | SciX/ADS | **PDF**

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- Stangalini, M., Giannattasio, F., **Jafarzadeh, S.** 2015, *Astronomy & Astrophysics*, 577, A17: Non-linear propagation of kink waves to the solar chromosphere | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Solanki, S. K., Lagg, A., Bellot Rubio, L. R., van Noort, M., Feller, A., & Danilovic, S. 2014, *Astronomy & Astrophysics*, 569, A105: Inclinations of small quiet-Sun magnetic features based on a new geometric approach | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Cameron, R. H., Solanki, S. K., Pietarila, A., Feller, A., Lagg, A., & Gandorfer, A. 2014, *Astronomy & Astrophysics*, 563, A101: Migration of Ca II H bright points in the internetwork | SciX/ADS | **PDF**

- **Jafarzadeh, S.**, Solanki, S. K., Feller, A., Lagg, A., Pietarila, A., Danilovic, S., Riethmüller, T. L., & Martínez Pillet, V. 2013, *Astronomy & Astrophysics*, 549, A116: Structure and Dynamics of Isolated Internetwork Ca II H Bright Points Observed by Sunrise | SciX/ADS | **PDF**

- Solanki, S. K., Barthol, P., Danilovic, S., Feller, A., Gandorfer, A., Hirzberger, J., **Jafarzadeh, S.**, Lagg, A., et al. 2012, *Astronomical Society of the Pacific Conference Series*, 455, 143: First Results from the Sunrise Mission | SciX/ADS | **PDF**

Presentations at Conferences/Meetings/Colloquiums

- From Sunrise I to Sunrise III: 17 Years of Advancing High-resolution Solar Physics with Sami, *invited talk*, SAMI 2026 – Solar Atmosphere Magnetism and Irradiance, Würzburg, Germany, 5-8 October 2026
- Probing wave transport in the lower solar atmosphere with Sunrise III and Solar Orbiter, *invited talk*, The Solar Orbiter "Atmospheric Heating" Science Working Group Seminar Series, through Zoom (online seminar), 21 September 2026
- Waves and oscillations in the lower solar atmosphere with Sunrise III: first results and future opportunities, *invited talk*, 1st Open Sunrise III Science Meeting, Freiburg, Germany, 1-3 June 2026
- Maximising the scientific return of high-resolution spectro-polarimetry: analysis considerations, *contributing poster*, Methods and techniques for high-resolution spectro-polarimetry with current and future high-resolution telescopes: lessons learned and ways forward, Freiburg, Germany, 12-15 January 2026
- Wave Signatures in a Sunspot from Near-UV Sunrise III/SUSI Observations , *contributing talk*, 3rd Sunrise III Science Meeting, Nagoya, Japan, 14-16 October 2025
- Wave analysis tools, *invited colloquium* at INAF-Osservatorio Astronomico di Roma; *presentation* at WISA 2025, Rome, Italy, 22-27 September 2025
- Exploring Wave Dynamics in a Sunspot with early Sunrise III/SUSI data, *contributing talk*, 2nd Sunrise III Science Meeting, Sevilla, Spain, 24-28 March 2025
- Wave analysis tools, *invited talk*, Advances in Analysis of Oscillatory Processes: From Astrophysics to Multidisciplinary Frontiers, Warwick, UK, March 2025
- MHD Waves in the Solar Atmosphere: Recent Advances from High-resolution Observations, *invited (review) talk*, Sun, Space Weather and Solar-Stellar Connections Conference, Bengaluru, India, 20-24 January 2025
- Wave analysis methods, *invited talk*, UK's National Astronomy Meeting (NAM), Hull, UK, 14-19 July 2024
- Magnetohydrodynamic wave modes identified in solar magnetic pores by Solar Orbiter, *contributing talk*, Annual Danish Astronomy Meeting (ADAM), Roskilde, Denmark, 22-23 May 2024
- Magnetohydrodynamic waves in solar magnetic pores observed by Solar Orbiter/PHI, *contributing talk*, WaLSA workshop, Oslo, Norway, 8–12 January 2024
- Sausage and kink waves in small-scale magnetic pores observed with Solar Orbiter/PHI, *contributing talk*, SOLARNET Conference: The Many Scales of the Magnetic Sun, Potsdam, Germany, 8–12 May 2023
- Wave Studies in the Lower Solar Atmosphere with Solar Orbiter, *invited talk*, The XIII COLAGE (the Latin American Conference on Space Geophysics), National Institute for Space Research - INPE, São José dos Campos, Brazil, 27 November–3 December 2022
- The Sun and Solar Activity, *invited lecture*, The International Space Science School (ISSS) 2022, National Institute for Space Research - INPE, São José dos Campos, Brazil, 24–26 November 2022
- High-resolution Wave Activity in the Lower Solar Atmosphere, *invited (review) talk*, The UK's National Astronomy Meeting (NAM) 2022, Warwick, UK, 11–15 July 2022

- WaLSAtools: An open-access repository on Wave Analysis Tools, *invited talk*, International Space Science Institute (ISSI) meeting: Waves in the Lower Solar Atmosphere at High Resolution, Bern, Switzerland, 19–22 April 2022
- Wave Studies with SO/PHI – In coordination with various instruments from Solar Orbiter and other observing facilities, *contributing talk*, SO/PHI Science Preparation Meeting, Göttingen, Germany, 28-30 September 2021
- High-resolution wave dynamics in the lower solar atmosphere – Unveiling the Sun's energetics in the new era of advanced facilities, *invited colloquium*, Leibniz Institute for Solar Physics (KIS), through Zoom (online seminar), 13 September 2021
- High-resolution wave activity in the lower solar atmosphere, *invited colloquium*, Astrophysics Research Centre (ARC), Queen's University Belfast, UK, through Zoom (online seminar), 5 May 2021
- Global *p*-modes in the solar chromosphere at high resolution, *contributing talk*, IIA-50: Advances in Observations and Modelling of Solar Magnetism and Variability, through Zoom (online seminar), 1-4 March 2021
- Waves in the Lower Solar Atmosphere particularly from ALMA, *invited (review) talk*, National Institute for Space Research of Brazil (INPE), through Zoom (online seminar), 11 September 2020
- Small-scale wave dynamics in the lower solar atmosphere, *invited colloquium*, Plasma Dynamics Group, The University of Sheffield, UK, 13 February 2020
- Oscillations observed with ALMA, *invited talk*, Theo Murphy international scientific meeting: High resolution wave dynamics in the lower solar atmosphere, Kavli Royal Society Centre, Chicheley Hall, UK, 10-11 February 2020
- Wave heating of the solar chromosphere from observations with ALMA, *contributing poster*, ALMA-2019: Science Results and Cross-Facility Synergies, Cagliari, Italy, 14-18 October 2019
- Wave heating of the lower solar atmosphere, *contributing talk*, the Hinode-13/IPELS 2019 meeting, Tokyo, Japan, 2-6 September 2019
- Magnetic-field topology of fibrillar structures throughout the solar chromosphere, *contributing talk*, Solar Polarisation Workshop 9, Göttingen, Germany, 26-30 August 2019
- Temperature Fluctuations in the Solar Chromosphere with ALMA, *contributing talk*, AOGS 2019 meeting, Singapore, 28 July - 2 August 2019
- Observing Waves in the Lower Solar Atmosphere with ALMA, *contributing talk*, "Preparing for the next generation of ground-based solar physics observations" workshop, Mullard Space Science Laboratory, UK, 23-26 July 2019
- Observing the dynamic chromosphere, *invited (review) talk*, Solar Activity, Magnetism & Irradiance (SAMI) workshop, Göttingen, Germany, 16-18 October 2018
- Instrumentation for observing waves and instabilities, *invited (review) talk*, BUKS–2018: Waves and instabilities in the solar atmosphere, La Laguna, Tenerife, Spain, 3-7 September 2018
- Kinematics of magnetic bright features in the solar photosphere, *contributing poster*, The XXXth General Assembly of the International Astronomical Union: Focus Meeting FM9 on Solar Irradiance, Vienna, Austria, 20-31 August 2018

- Transverse kink waves in the solar chromosphere, *invited talk*, International Space Science Institute (ISSI) meeting: Towards Dynamic Solar Atmospheric Magneto-Seismology with New Generation Instrumentation, Bern, Switzerland, 2-6 July 2018
- Fibrillar structures in the solar chromosphere, *contributing talk*, European Week of Astronomy and Space Science (EWASS) 2018 , Liverpool, UK, 3-6 April 2018
- Waves and oscillations in chromospheric fibrillar structures, *invited colloquium*, INAF-Osservatorio Astronomico di Roma, Rome, Italy, 24 November 2017
- Fibrillar structures in the solar chromosphere, *contributing talk*, The 4th Asia-Pacific Solar Physics Meeting, Kyoto, Japan, 7-10 November 2017
- Fibrillar structures in the solar chromosphere, *contributing talk*, The 15th European Solar Physics Meeting (ESPM), Budapest, Hungary, 4-8 September 2017
- Slender Ca II H fibrils in the low solar chromosphere, *contributing talk*, The 7th Solar Orbiter meeting: Exploring the solar environs, Granada, Spain, 3-7 April 2017
- Probing waves through the solar atmosphere at high resolution, *invited colloquium*, Kiepenheuer Institute for Solar Physics (KIS), Freiburg, Germany, 5 July 2016
- Chromospheric heating due to transverse waves in small magnetic elements, *contributing talk*, IRIS–6: The Chromosphere, Stockholm, Sweden, 20-23 June 2016
- Do slender Ca II H fibrils represent a low-lying magnetic canopy?, *contributing talk*, The 10th Sunrise science meeting, Göttingen, Germany, 3-4 May 2016
- Angular distribution of internetwork fields, *contributing talk*, Hinode–9 meeting, Belfast, UK, 14-18 September 2015
- Multi-wavelength observations of magnetic upflow events in the solar photosphere, *contributing talk*, EWASS (European Week of Astronomy and Space Science), La Laguna, Tenerife, Canary Islands, Spain, 22-26 June 2015
- Magnetic upflows in the solar atmosphere, *contributing talk*, The 3rd SOLARNET workshop: Polarisation in the Sun, the Solar System, and Beyond, Granada, Spain, 25-28 May 2015
- Oscillations along Ca II H slender fibrils + Turbulent diffusion of magnetic bright features in the solar photosphere, *contributing talks*, The 2nd Sunrise II science meeting, Madrid, Spain, 4-5 May 2015
- Magnetic field inclination in the quiet-Sun internetwork, *contributing talk*, International Space Science Institute (ISSI) meeting: Solar Magnetic Fields: From Measurements towards Understanding, Bern, Switzerland, 12-16 January 2015
- Dynamics of small-scale magnetic structures in the lower solar atmosphere, *invited colloquium*, INAF-Osservatorio Astronomico di Roma, Rome, Italy, 23 October 2014
- Magnetic blue-shifted events in the quiet-Sun photosphere, *contributing talk*, The 14th European Solar Physics meeting (ESPM), Dublin, Ireland, 8-12 September 2014
- High-frequency, rapid propagating waves in the lower solar atmosphere, *invited colloquium*, Kiepenheuer Institute for Solar Physics (KIS), Freiburg, Germany, 25 June 2014
- Kink wave excitation due to high-velocity excursions in the lower solar atmosphere, *contributing talk*, Astronomdagarna 2013: Swedish national astronomy meeting, Lund, Sweden, 10-12 October 2013

- Inclinations of small quiet-Sun magnetic features, *contributing talk*, The 1st SOLARNET – 3rd EAST/ATST meeting: Synergies between ground and space based solar research, Oslo, Norway, 5-8 August 2013
- Longitudinal and kink waves in small magnetic features studied by Sunrise, *contributing poster*, GONG 2012 / LWS / SDO-5 / SOHO 27: Eclipse on the Coral sea: Cycle 24 ascending, Palm Cove, Australia, 12-16 November 2012
- Diffusivity of isolated internetwork Ca II H bright points observed by Sunrise/SuFI, *contributing poster*, SDO-4 / IRIS / Hinode: Dynamics and energetics of the coupled solar atmosphere, Monterey, USA, 12-16 March 2012
- Dynamics of magnetic bright points in the lower solar atmosphere (various aspects), *contributing talks*, Sunrise science meetings held in Katlenburg-Lindau (March 2010), Freiburg (May 2010), Bremen (July 2010), Frankfurt (November 2010), Göttingen (June 2011), Katlenburg-Lindau (April 2012), Germany
- Structure and dynamics of the Sunrise Ca II H bright points, *contributing poster*, Hinode–4 meeting: Unsolved Problems and Recent Insights, Mondello, Palermo, Italy, 11-15 October 2010
- Relation between the Sunrise photospheric magnetic field and the Ca II H bright features, *contributing poster*, COSPAR–10: The 38th assembly of the committee on space research, Bremen, Germany, 18-25 July 2010
- Chromospheric observations with CRISP at the Swedish 1–meter Solar Telescope, *contributing poster*, The First EAST-ATST Science Workshop: Science with large solar telescopes, Freiburg, Germany, 14-16 October 2009 - and at the 3rd Hinode Science Meeting, Tokyo, Japan, 1-4 December 2009

Appointments, Services, and Outreach Activities

2026–present Member, ISSI (International Space Science Institute) international team “Unlocking the Mysteries of the Solar Chromosphere”

2025–present Member, Sunrise III/SUSI Core Science Team

2025 Chair, Scientific Organising Committee of the international conference: Waves and Instabilities in the Solar Atmosphere (September 2025, Monte Porzio Catone, Rome, Italy)

2025–2026 Member, ISSI (International Space Science Institute) international team “Opening new avenues in identifying coherent structures and transport barriers in the magnetised solar plasma”

2025–present Member, Solar Physics International Network for Swirls (SPINS)

2024–present President, Waves and Instabilities in the Solar Atmosphere (WISA) Committee – organising international workshops on the modelling and observations of waves and instabilities in the solar atmosphere

2023–present Member, Science Advisory Group of the European Solar Telescope (EST)

2021–present Co-chair, Solar Orbiter’s remote-sensing science working group on “magnetoconvection” (Solar Orbiter is a space telescope from NASA and the European Space Agency, travelling to the ever closest distance to the Sun)

2018–present Co-founder, Waves in the Lower Solar Atmosphere (WaLSA) Team – an international science team focused on waves and oscillations in the Sun's lower atmosphere (www.WaLSA.team)

2019–present Principal organiser, European Solar Physics Online Seminars (ESPOS)

2019–present Member, International Scientific Committee of the "Research in Heliophysics" of the Brazilian National Institute for Space Research (INPE)

2013–present Supervisor/Co-advisor, 6 MSc students, 4 PhD researchers, and one postdoctoral fellow

2023 Co-chair, Scientific Organising Committee of the international SOLARNET Conference: The Many Scales of the Magnetic Sun (May 2023, Potsdam, Germany)

2023 Guest editor, "The Many Scales of the Magnetic Sun" issue of the "Solar Physics" journal

2013–present Referee, international journals such as "Astronomy & Astrophysics", "The Astrophysical Journal", "Astrophysics and Space Science"

2019–present Review editor on the Editorial Board of Stellar and Solar Physics, "Frontiers in Astronomy and Space Sciences" and "Frontiers in Physics" journals

2020–2021 Guest editor, "High resolution wave dynamics in the lower solar atmosphere" issue of the "Philosophical Transactions of the Royal Society A" journal

2019–2021 Co-founder and coordinator, Norwegian Astronomy Olympiad; for participation of Norway in the International Olympiad on Astronomy and Astrophysics (IOAA)

2020 Member, Local Organising Committee of the First International Workshop on Solar Imaging with ALMA, 2–6 March 2020, University of Oslo, Norway

2018 Member, 'Wave studies' working group of the Daniel K. Inouye Solar Telescope (DKIST)

2018 Member, ISSI (International Space Science Institute) international team "Towards Dynamic Solar Atmospheric Magneto-Seismology with New Generation Instrumentation"

2017–2020 Co-founder, "Astronomy on Tap Oslo", a bimonthly event for public outreach

2015 Member, ISSI (International Space Science Institute) international workshop "Solar Magnetic Fields: From Measurements towards Understanding"

2015–present Reviewer, astroEDU: an open-access platform of the International Astronomical Union (IAU) for peer–reviewed astronomy education activities

2009 Member, "International Year of Astronomy" official events, e.g., blogging at "100 Hours of Astronomy" and "Cosmic Diary"; and organising public outreach activities in Lund, Sweden

2006–2007 Founding member, "International Olympiad on Astronomy and Astrophysics"

2004–2005 Jury member, "International Astronomy Olympiad"

2000–present Invited speaker, various public events in astronomy

2000–2005 Astronomy teacher, several high schools/educational centres

Skills

Programming	Python, Interactive Data Language (IDL), Matlab, ParaView
Web	HTML, PHP, CSS, JavaScript, jQuery, Bootstrap, CMS, MySQL
Graphic design	Adobe Photoshop and Illustrator, Animation making, Video editing
Collaboration	Leadership, Teamwork, Analytical, Problem-solving, Communication
Language	English (fluent), Persian (native), Norwegian (intermediate)