INFORMAZIONI PERSONALI

NOME E COGNOME Silvano Fineschi
NAZIONALITA' Italia

WORK EXPERIENCE

2024 - present

"Dirigente di Ricerca" (Level I)

Istituto Nazionale d'Astrofisica Osservatorio Astrofisico di Torino

- Lead Co-I of the CODEX NASA-KASI-INAF coronagraph onboard the International Space Station

2018 - 2023

Director – "Dirigente di Ricerca" (Level I)

Istituto Nazionale d'Astrofisica Osservatorio Astrofisico di Torino

- Research institute management
- INAF Scientific Responsible for Italian contribution to ESA/NASA Solar Orbiter mission
- Principal Investigator of the Sounding-rocket Coronagraphic Experiment – SCORE. of the NASA suborbital experiment HERSCHEL (2nd flight – March 2022)
- Lead Co-Investigator ASPIICS coronagraph for ESA formation-flying PROBA-3 mission
- Principal Investigator of the Coronal Magnetograph – CorMag – experiment of the EU-funded stratospheric Hemera mission.
- Principal Investigator of the Antarctic Coronagraph (AntarctiCor) for the ESCAPE Project.

2002-2017

Associate Researcher (Level II)

Istituto Nazionale d'Astrofisica Osservatorio Astrofisico di Torino

- Definition and design of the Metis coronagraph experiment for the ESA/NASA Solar Orbiter mission
- Co-Principal Investigator of the Sounding-rocket Coronagraphic Experiment – SCORE. of the NASA suborbital experiment HERSCHEL (1st flight – Sept. 2009)
- Lead Co-Investigator ASPIICS coronagraph for ESA formation-flying PROBA-3 mission
- Principal Investigator of the Antarctic Coronagraph (AntarctiCor) for the ESCAPE Project and
- Expedition Leader for the AntarctiCor deployment - XXXIV PNRA Campaign, Concordia, Antarctica.
- Eclipse Expedition Leader, Eclipse Expeditions, K-Corona & E-Corona Liquid Crystal Spectro-polarimeter Waw-al-Namus, Libya;

1992-2001

Astrophysicist

Smithsonian Institution – Smithsonian Astrophysical Observatory, Cambridge, MA and
NASA/Goddard Space Flight Center Greenbelt, MD - USA

- Mission Operations Lead Scientist, Co-I of the Ultraviolet Coronagraph and Spectrometer or SOHO.
- Associate scientist of the UV Coronal Spectrometer for the Space Shuttle Sub-satellite SPARTAN.
- Co-I Smithsonian Inst. Scholarly Study on a "New Method for Measuring Magnetic Fields in the Solar Corona".

1989-1991

Research Associate

National Academy of Science
NASA-Marshall Space Flight Center, Huntsville, AL -USA

- Solar Maximum Mission data analysis
- Multi-Spectral Solar Telescope Array – MSSTA – sounding-rocket experiment research associate

EDUCATION AND TRAINING

1991-1994 PhD in Astrophysics
Università di Firenze
Dipartimento di Astronomia e Scienza dello Spazio
Astrophysics – Space Science

1989-1991 Research Associate
National Academy of Science Research Associateship
NASA Marshall Space Flight Center
Solar Physics
Space Solar Physics

1983-1988 Laurea in Fisica
Università di Firenze
Dipartimento di Astronomia e Scienza dello Spazio
Atomic Physics

WORK ACTIVITIES

Main projects

2023-present Lead Co-I of the CODEX NASA-KASI-INAF coronagraph onboard the International Space Station

2018-present INAF Principal Investigator ("Responsabile Scientifico INAF") Solar Orbiter Science Support for the Phase D/E and E1 of the Instruments Metis, SWA/DPU e STIX

2019-present Principal Investigator CorMag-Coronal Magnetograph for the HEMERA Stratospheric Balloon Program.

2018-19 Expedition Leader of the ESCAPE-AntarctiCor Project - XXXIV PNRA Campaign, Concordia, Antarctica.

2016-present Principal Investigator ESCAPE-AntarctiCor, Antarctic Coronal-Magnetograph, National Plan for Research in Antarctica (PNRA). XXXIV, XXXV, XXXVII and XXXVIII Campaigns at Italian-French Concordia base, Antarctica.

2012-2018 INAF Principal Investigator ("Responsabile Scientifico INAF") Solar Orbiter Science Support for the Development of the Instruments Metis, SWA/DPU e STIX.

2012-present Principal Investigator, SCORE II on HERSCHEL II sounding-rocket, US Naval Research Laboratory (NRL), Washington, DC and INAF - Torino, Italy

2011-present Project Scientist, Co-I Metis coronagraph, ESA Solar Orbiter mission, INAF - Torino, Italy

2010-present PI of Italian contribution to ESA PROBA-3 mission, Lead Co-I ASPIICS Formation-Flying PROBA Coronagraph, INAF - Torino, Italy, and CSL, Liege (Belgium);

2010 WP Lead ESA Startiger study for the PROBA-3 mission, INAF - Torino, Italy, and CSL, Liege Belgium);

2010-present, Chair of the INAF-ALTEC Managing Committee of the Optical Payload Systems – OPSys – facility.

2010 Eclipse Expedition Leader, Eclipse Expeditions, K-Corona & E-Corona Liquid Crystal Spectro-polarimeter; Tatakoto, French Polynesia;

2006 Eclipse Expedition Leader, Eclipse Expeditions, K-Corona & E-Corona Liquid Crystal Spectro-polarimeter Waw-al-Namus, Libya;

2006-2010 – Principal Investigator, Development of the Optical Payload Systems – OPSys – facility, Applied Research Grant from the Piedmont Region. INAF Turin Astrophysical Observatory – ALTEC Turin, Italy

2003-12 Co-PI, Project Scientist, "Sounding-rocket Coronagraphic Experiment" (SCORE) on the HERSCHEL sounding- rocket payload, INAF - Torino, Italy, US NRL, Washington, DC

1995-98 Mission Operations Lead Scientist, Co-I of the Ultraviolet Coronagraph and Spectrometer on SOHO.

1992-99 Associate scientist of the UV Coronal Spectrometer for the Space Shuttle Sub-satellite SPARTAN.

Tutoring activities

a. 2011-present – Adjunct professor for the "Laboratory for Astrophysics" graduate course at the University of Torino, Italy.

b. 2010, October – Lecturer for the "Scuola Rivelatori" course, INFN, Torino, Italy

c. 2008, October – Lecturer for the "Space Academy" course, Thales-Alenia Space, Torino, Italy

d. Thesis Tutorship:

i. PhD theses (Dottorato di Ricerca)
   a. 2025 – Hervè Haudemant, Università di Torino (advisor)
   b. 2020 – Raphael Rougeot, Université de Nice, Francia (co-advisor)
   c. 2020 – Vladimiro Noce Università di Firenze (co-advisor)
   d. 2016 – M. Casti, Università di Torino (advisor)
   e. 2011 – Alexander Khan, Università di Firenze (co-advisor)
   f. 2010 – Maurizio Pancrazzi, Università di Firenze (co-advisor)
   g. 2008 – Huw Morgan, Aberystwyth University, Wales UK (co-advisor).
   h. 2002 – F. Landini, Università di Firenze (co-advisor)

ii. Master theses (Laurea Magistrale)
   a. 2014 – Jessica Girella, Università di Torino
   b. 2009 – Emanuele Balboni, Università di Torino

iii. Bachelor theses (Laurea Triennale)
   a. 2011 – Mattia Levi, Università di Torino
   b. 2008 – Filippo Crudelini, Università di Torino
   c. 2006 – Francesca Schiavon, Università di Torino

Awards

1997 Special Achievement Award, Smithsonian Institution (Outstanding Scientific Research).

1996 Special Achievement Award, Smithsonian Institution (UVCS/SOHO Science Operations).

1995 Special Act Group Award, NASA (UVCS/SOHO Refurbishment).

1995 European Space Agency Award, ESA (Valuable Contribution to SOHO).

1995 "Gratton Prize"- biannual award for the best Italian Ph.D. thesis in Astronomy - Special Mention, Italy.

Editorial activity

Fineschi, Silvano; Fennelly, Judy Ann (2015): Solar physics and space weather instrumentation VI. 9-10 August 2015, San Diego, California, United States / Silvano Fineschi, Judy Fennelly, editors. Bellingham, Washington: SPIE (Proceedings of SPIE, 0277-786X, volume 9604).

Fineschi, Silvano; Fennelly, Judy (2013): Solar physics and space weather instrumentation V. 25-26 August 2011, San Diego, California, United States / Silvano Fineschi, Judy Fennelly, editors. Bellingham, Washington: SPIE (Proceedings of SPIE, 0277-786X, volume 8862).

Fineschi, Silvano; Fennelly, Judy Ann (2011): Solar physics and space weather instrumentation IV. 21-24 August 2011, San Diego, California, United States / Silvano Fineschi, Judy Fennelly, editors sponsored and published by SPIE. Bellingham, WA: SPIE (Proceedings of SPIE, 0277-786X, v. 8148).

Fineschi, Silvano; Fennelly, Judy A. (2009): Solar physics and space weather instrumentation III. 4-6 August 2009, San Diego, California, United States / Silvano Fineschi, Judy A. Fennelly, editors; sponsored and published by SPIE.Bellingham, Wash.: SPIE (Proceedings of SPIE, 0277-786X, v. 7438).

Fineschi, Silvano; Viereck, Rodney A. (2007): Solar physics and space weather instrumentation II. 26-27 August 2007, San Diego, California, USA / Silvano Fineschi, Rodney A. Viereck, editors; sponsored and published by SPIE. Bellingham, Wash.: SPIE (Proceedings of SPIE, 0277-786X, v. 6689).

Fineschi, Silvano; Viereck, Rodney A. (2005): Solar physics and space weather instrumentation. Silvano Fineschi and Rodney A. Viereck.

Fineschi, Silvano; Gummin, Mark A. (2004): Telescopes and instrumentation for solar astrophysics

Fineschi, Silvano (2003): Polarimetry in astronomy.

Siegmund, Oswald H. W.; Fineschi, Silvano; Gummin, Mark A. (2001): UV.

Fineschi, Silvano (2000): Instrumentation for UV.

Fineschi, Silvano (1999): Ultraviolet and X-ray detection, spectroscopy, and polarimetry III.

Fineschi, Silvano (1998): X-ray and ultraviolet spectroscopy and polarimetry II.

Fineschi, Silvano (1995): X-ray and EUV. Conference Papers.

Fineschi, Silvano (1994): X-Ray and ultraviolet spectroscopy and polarimetry.

Fineschi, Silvano (1993): X-Ray and ultraviolet polarimetry. Conference: Papers.

Invited presentations

a. 2019, Invited presentation "A journey to the polar regions of a star" ESA workshop Voyage 2050, at Consejo Superior de Investigaciones Cientificas, Madrid, Spain.

b. 2017, Invited seminar "Observing the Corona from Space", National Solar Observatory Colorado University, Boulder, CO, USA.

c. 2010, Invited seminar "Probing Coronal Magnetism with UV/EUV Polarimetry", High Altitude Observatory and Colorado University, Boulder, CO, USA.

d. 2006, Invited seminar "Prospects of Coronal Spectro-Imaging from Solar Orbiter and Probe", NASA/Marshal Space Flight Center and University of Alabama in Huntsville, AL, USA.

Grants

i. 2019-present ASI-INAF contract "Supporto allo sviluppo payload italiani selezionati per voli su pallone stratosferico nell'ambito del progetto europeo HEMERA"

ii. 2019-present Univ. Sapianza-INAF contract "Svolgimento di attività di ricerca e sviluppo sulla propulsione solare fotonica" –

iii. 2015-present ASI-INAF contract "Solar Orbiter - Supporto Scientifico per la Realizzazione degli Strumenti METIS e SWA/DPU fasi D/E" "

iv. 2012-2015 ASI-INAF contract for "Solar Orbiter - Supporto Scientifico per la Realizzazione degli Strumenti METIS e SWA/DPU fasi B2/C1".

v. 2016-present ESA-INAF contract "PROBA 3 Coronagraph System Optical Analyses, Formation-flying Metrology & Calibration".

vi. 2016-present PNRA-INAF contract "Piano Nazionale Ricerche Antartide", ESCAPE – AntarctiCor. – Financial management

VII. 2006-2010 Piedmont Region – INAF contract for "Development of the Optical Payload Systems – OPSys – facility" – Financial management

Patents

Electro-optical-polarimeter based on liquid crystals
(European Patent No. 16382241.4 - N-REF PSC-EP-1347)

ADDITIONAL INFORMATION

Publications

Total number of publications in peer-review journals 78
Total number of citations: 4129
H index (Scopus): 25

Insert **relevant** publications (5-10 publications)

1) **Fineschi, S.**; Naletto, G.; Romoli, M.; Da Deppo, V.; Antonucci, E.; Moses, D. et al. (2020): Optical design of the multi-wavelength imaging coronagraph Metis for the solar orbiter mission. In *Experimental Astronomy* 49 (3), pp. 239–263. DOI: 10.1007/s10686-020-09662-z

2) Moses, J. D.; Antonucci, E.; Newmark, J.; Auchère, F.; **Fineschi, S.**.; Romoli, M. et al. (2020): Global helium abundance measurements in the solar corona. In *Nature Astronomy*. DOI: 10.1038/s41550-020-1156-6.

3) E. Antonucci, M. Romoli, Vincenzo Andretta, S. **Fineschi**, Petr Heinzel, J. Daniel Moses, Giampiero Naletto, Gianalfredo Nicolini, D. Spadaro, Luca Teriaca et al. (93 more) , (2020), Metis: the Solar Orbiter visible light and ultraviolet coronal imager, A&A, 642, A10 Available with Open Access: DOI: 10.1051/0004-6361/201935338.

4) **Fineschi, S.**; Capobianco, G.; Massone, G.; Susino, R.; Zangrilli, L.; Bemporad, A. et al. (2019): AntarctiCor: Solar Coronagraph in Antarctica for the ESCAPE Project. In *Nuovo Cimento C Geophysics Space Physics C* 42 (1), p. 26. DOI: 10.1393/ncc/i2019-19026-9.

5) Casti, M.; **Fineschi, S.**; Capobianco, G.; Romoli, M.; Antonucci, E.; Nicolini, G. et al. (2019): Metis/Solar Orbiter polarimetric visible light channel calibration. In: International Conference on Space Optics — ICSO 2018, vol. 11180 (Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series), 111803C.

6) Raouafi, Nour E.; Riley, Pete; Gibson, Sarah; **Fineschi, S.**; Solanki, Sami K. (2016): Diagnostics of Coronal Magnetic Fields Through the Hanle Effect in UV and IR Lines. In *Frontiers in Astronomy and Space Sciences* 3, p. 20. DOI: 10.3389/fspas.2016.00020.

7) **Fineschi, S.**; Antonucci, E.; Romoli, M.; Bemporad, A.; Capobianco, G.; Crescenzio, G. et al. (2013): Novel space coronagraphs: METIS a flexible optical design for multi-wavelength imaging and spectrography. In: *Solar Physics and Space Weather Instrumentation V- Vol.* 8862 (Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series) 88620G.

8) **Fineschi, S.**; Crescenzio, G.; Massone, G.; Capobianco, G.; Zangrilli, L.; Antonucci, E.; Anselmi, F. (2011): OPSys: optical payload systems facility for testing space coronagraphs. In: Solar Physics and Space Weather Instrumentation IV, vol. 8148 (Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series), 81480W.

9) **Fineschi, S.**; Antonucci, E.; Romoli, M.; Gardiol, D.; Naletto, Giampiero; Giordano, Silvio et al. (2003): Ultraviolet and Visible-light Coronagraphic Imager (UVCI). In: Innovative Telescopes and Instrumentation for Solar Astrophysics, vol. 4853 (Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series), pp. 162–171.

10) Esser, Ruth; **Fineschi, S.**; Dobrzycka, Danuta; Habbal, Shadia R.; Edgar, Richard J.; Raymond, John C. et al. (1999): Plasma Properties in Coronal Holes Derived from Measurements of Minor Ion Spectral Lines and Polarized White Light Intensity. In *ApJ* 510 (1), L63-L67. DOI: 10.1086/311786.

Silvano Fineschi