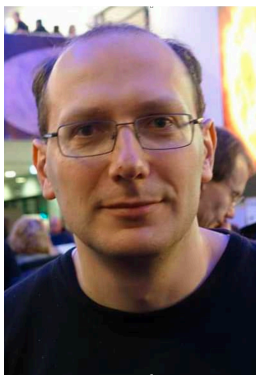
CURRICULUM VITAE



Alexander Shapiro

April 2022

Born 17 March 1982 in Leningrad, Soviet Union

Married, one child

Degrees

- March 2009 Doctorate (PhD) in Physics; ETH, Zurich;
- June 2004 Diploma in math and astronomy with honour; St.-Petersburg State University, Russia

Education and work

2017 - now Leader of the SOLVe Research Group funded at Max-Planck-Institut für Sonnensystemforschung, Göttingen, Germany

2014 - 2016 Marie Curie Fellow, Max-Planck-Institut für Sonnensystemforschung, Göttingen, Germany

2008 - 2014 Scientist (postdoc), Physikalisch-Meteorologisches Observatorium / World Radiation Center, Davos, Switzerland

2004 - 2008 PhD-student, Institute of Astronomy, ETH, Zurich, Switzerland

1999 - 2004 Student of math and astronomy, St.-Petersburg State University, Russia

1995 - 1999 Student, specialised mathematical high school 239, St.-Petersburg, Russia

Awards

- 2016 Starting Grant from the European Research Council
- 2013 Marie Curie Intra-European Fellowship (*application ranked in top 3% in Physics*)
- 2003-2004 Fellowship from the “Dynasty” foundation in theoretical physics
- 2000, 2002 Soros fellowships
- 1996-1998 First, second, and third prizes at highly prestigious All-Russian and Soros Olympiads in astronomy, physics and mathematics among high-school students; absolute winner of Saint Petersburg city Olympiads in physics (5 times), astronomy (4 times), and math (2 times)

Scientific interests

- Numerical simulations of stellar and planetary atmospheres
- Stellar activity and star-planet connection
- Radiative transfer
- Climatology

Editorial and other professional offices, committees (selection)

2019 - 2022 Leader of the ISSI Team 446 “*Linking Solar and Stellar Variabilities*”

2020 - 2021 Member of Expert Working Group on Astrophysics. ESA's Directorate of Human and Robotic Exploration

2020 - 2021 Co-leader of the subgroup "Stellar Photospheric Heterogeneities" in NASA Study Analysis Group 21 “The Effect of Stellar Contamination on Space-based Transmission Spectroscopy”

2019 - 2020	Guest Editor of the Topical Issue "*Irradiance Variations of the Sun and Sun-like Stars*" of the *Solar Physics;*
2015 - 2020	Leader of the ESA's Topical Team "*SOLAR* mission"
2015 - 2020	Co-chair of the International Astronomical Union (IAU) Commission E1 Working Group *"Solar Irradiance"*
2015	Proposal reviewer, NASA Review Panel, USA
2013 - 2016	Guest Editor of two Topical Issues ("*Brightness Variations of the Sun and Sun-like Stars and Resulting Influences on their Environments*" and "*Solar variability, solar forcing, and coupling mechanisms in the terrestrial atmosphere*") of the *Journal of Space Weather and Space Climate*;
2013 - present	Member of 8 SOCs of international meetings (among them proposer of 2 and co-chair of 2)
2011 - now	Reviewer for international Journals: Nature Astronomy, Astronomy and Astrophysics, The Astrophysical Journal, The Astrophysical Journal Letters, Journal of Geophysical Research, Geophysical Research Letters, Solar Physics, Earth and Space Science, New Astronomy, J. Atmos. Solar-Terrestr. Phys.

Publications

71 refereed publications (among first three authors of 45) + 1 book chapter + 9 conference proceedings

Refereed publications (ADS): https://ui.adsabs.harvard.edu/public-libraries/B1I6STywSYOEevM2V1PHfQ

Non refereed publications (ADS): https://ui.adsabs.harvard.edu/public-libraries/1OeI_xm6STqrKFoxD-Qo3Q

Google Scholar profile - https://scholar.google.com/citations?user=oinqrkgAAAAJ&hl=en

Ten selected publications

Citations (as of April 2022) are given according to The SAO/NASA Astrophysics Data System

- K10. Witzke, V.; **Shapiro, A.I.;** Cernetic, M.; Tagirov, R.V.; Kostogryz, N.M.; Anusha, L.S.; Unruh, Y.C.; Solanki, S.K.; Kurucz, R.L., "MPS-ATLAS: A fast all-in-one code for synthesising stellar spectra", 2021, *Astron. Astrophys.,* 653, A65 (4 citations);
- K9. Reinhold, T.; **Shapiro, A.I.;** Witzke V, Nèmec, N.-E., Isik, E., Solanki, S.K., "Where Have All the Solar-like Stars Gone? Rotation Period Detectability at Various Inclinations and Metallicities", *Astrophysical Journal Letter*, 908, 2, L21 (5 citations);
- K8. Nèmec, N.-E., **Shapiro, A.I.**, Krivova, N. A., Solanki, S.K., Tagirov, R.V., Cameron, R.H.; Dreizler, S., "Power spectra of solar brightness variations at various inclinations", 2020, *Astron. Astrophys.,* 636, A43 (14 citations);
- K7. Işık, E.; **Shapiro, A.I.;** Solanki, S.K.; Krivova, N.A., "Amplification of brightness variability by active-region nesting in solar-like stars", 2020, *Astrophysical Journal Letters*, 901, L12 (12 citations);
- K6. Reinhold, T.; **Shapiro, A.I.;** Solanki, S.K.; Montet, B.T.; Krivova, N.A.; Cameron, R.H.; Amazo-Gómez, E.M., "The Sun is less active than other solar-like stars", 2020, *Science*, 368, 6490, 518 (42 citations);
- K5. Witzke, V.; **Shapiro, A.I.;** Solanki, S.K.; Krivova, N.A.; Schmutz, W., "From solar to stellar brightness variations. The effect of metallicity", 2018, *Astronomy & Astrophysics*, 619, 146, 11 (24 citations);
- K4. **Shapiro, A.I.**, Solanki, S.K., Krivova, N.A., Cameron, R.H., Yeo, K.L., Schmutz, W.K., "The nature of solar brightness variations", 2017, *Nature Astronomy*, 1, 612S (34 citations);
- K3. **Shapiro, A.I.,** Solanki, S. K., Krivova, N. A., Yeo, K. L., & Schmutz, W. K., "Are solar brightness variations faculae- or spot-dominated?", 2016, *Astron. Astrophys*, 589, A46 (50 citations);
- K2. **Shapiro, A.I.;** Solanki, S.K.; Krivova, N.A.; Schmutz, W.K.; Ball, W.T.; Knaack, R.; Rozanov, E.V.; Unruh Y.C., "Variability of Sun-like stars: reproducing observed photometric trends", 2014, *Astronomy & Astrophysics*, 569, A38 (68 citations);
- K1. **Shapiro, A.I.;** Schmutz, W.; Rozanov, E.; Schoell, M.; Haberreiter, M.; Shapiro, A.V.; Nyeki, S., "A new approach to the long-term reconstruction of the solar irradiance leads to large historical solar forcing", 2011, *Astronomy & Astrophysics*, 529A, 67S (169 citations)

Participation in conferences

Invited talks and invited reviews at international meetings:

- I28. “Lessons learned from solar-like stars”, *Workshop on Extreme Solar Events*, Rokua, Finland, 2022;
- I27. “Stellar Photospheric & Chromospheric Heterogeneity”, *NASA SAG21 Community Symposium*, on Zoom, 2021;
- I26. “Solar Activity over the Last Four Billion Years”, *2020 Sun-Climate Symposium*, Tucson, USA, 2020;
- I25. “Variability of the Sun and Sun-like stars”, *Light Conference 2019*, Changchun, China, 2019;
- I24. “How typical is the Sun as an active star?”, CPT Section Symposium 2019, Berlin, Germany 2019;
- I23. “Activity of the Sun and Sun-like stars”, Max Planck / Colombia Symposium, Bogota, Colombia, 2019;
- I22. “Decrypting brightness variations of Sun-like stars using solar code”, International Workshop *Observing the Sun as a Star*, Göttingen, Germany, 2018;
- I21. “Long-term variations of solar irradiance”, *14th Quadrennial Solar-Terrestrial Physics (STP) symposium,* Toronto, Canada, 2018;
- I20. “Comparing Solar and Stellar Variability”, *2018 Sun-Climate Symposium*, Lake Arrowhead, USA, 2018;
- I19. “Brightness variations of solar-type stars: available datasets and recent achievements”, *IAU Symposium 340 “Long-term datasets for the understanding of solar and stellar magnetic cycles”*, Jaipur, India, 2018;
- I18. “The origin of solar spectral variability”, *3rd Solar Connection Symposium*, Oxford, UK, 2017;
- I17. “Connecting Solar and stellar brightness variations”, *IAU Symposium 328 “Living Around Active Stars”*, Maresias, Brazil, 2016;
- I16. “The historical variability of solar irradiance”, *First VarSITI General Symposium*, Albena, Bulgaria, 2016;
- I15. “Solar spectral irradiance model validation using Solar Spectral Irradiance and Solar Radius measurements”, *EGU General Assembly*, Vienna, Austria, 2016 (*presented on behalf of Gerard Thuillier);*
- I14. “Can we use stellar photometric data to better understand solar variability”, *Solar Metrology Symposium II*, Brussels, Belgium, 2015;
- I13. “Solar brightness variability in the stellar context”, *Second SOLARNET Meeting on "Solar and stellar magnetic activity”*, Palermo, Italy, 2015;
- I12. “Variability of solar irradiance: What we do and do not know”, *Solar Metrology Symposium*, Paris, France, 2014;
- I11. “Solar irradiance variability on different timescales”, *COST ES1005 - FP7 SOLID workshop on future solar scenarii*, Corfu, Greece, 2014;
- I10. “Solar and stellar variability. Does radiative transfer matter?”, *Second FUPSOL/PAGES Meeting*, Davos, Switzerland, 2014;
- I9. “What can we learn about solar irradiance variability from the stellar observations?”, *COST ES1005 second annual meeting*, Prague, Czech Republic, 2013;
- I8. “Variability of the solar irradiance”, *First FUPSOL/PAGES Meeting*, Davos, Switzerland, 2012;
- I7. “The variability of the Sun and Sun-like stars”, *European Week of Astronomy and Space Science*, Rome, Italy, 2012;
- I6. “Modelling of the spectral solar irradiance with COSI”, *COST ES1005 workshop on “Recent variability of the solar spectral irradiance and its impact on climate modelling”*, Berlin, Germany, 2012;
- I5. “Probing the Solar Forcing with Sun-like stars”, *AOGS-AGU Joint Assembly*, Singapore, 2012;
- I4. “Modelling of the Solar Spectral Irradiance as observed by LYRA/PROBA2 and PREMOS/PICARD”, *AGU Fall Meeting*, San Francisco, USA, 2011;
- I3. "Do we really understand the long-term trend in the solar irradiance?", 8*th European Space Weather Week*, Namur, Belgium, 2011;
- I2. “Present and past solar irradiance: a quest for understanding”, *Third Santa Fe Conference on Global and Regional Climate Change*, Santa Fe, USA, 2011;

- I1. “Mechanisms for solar spectral irradiance variations”, *COST ES1005 first annual meeting*, Potsdam, Germany, 2011.

Contributed + seminars

- over 20 oral contributed presentations at international meetings; over 20 invited seminar talks

Organisation of conferences

- SOC member and the proposer of the Splinter Session *“Modelling stellar atmospheres: advances brought by solar know-how”*, at Cool Stars 21 meeting, Toulouse, France, (2020 postponed);
- SOC member and the proposer of the Splinter Session *“Stellar Brightness Variations: building on the solar knowledge”*, at Cool Stars 20 meeting, Boston/Cambridge, USA (2018);
- co-chair of the Focus Meeting 9, *“Solar Irradiance: Physics-Based Advances”*, at XXX International Astronomical Union (IAU) General Assembly (2018);
- SOC member of the Splinter Session *“Magnetically-driven solar variability in the context of Sun-like stars: peculiarities and common features”*, at Cool Stars 19 meeting, Uppsala, Sweden (2016);
- co-chair of the Focus Meeting 13, *“Brightness Variations of the Sun and Sun-like Stars”*, at XXIX International Astronomical Union (IAU) General Assembly (2015);
- co-convener (SOC member) of the session *"Solar irradiance variability: Measurements, Models, Proxies, and Causes"* at European Geosciences Union (EGU) 2014 General Assembly;
- co-convener (SOC member) of the session *"Solar and stellar variability: what can we learn from a joint effort?"* at European Geosciences Union (EGU) 2013 General Assembly;
- co-convener (SOC member) of the session *“Space weather in planetary systems”* at Tenth European Space Weather Week (2013).

Supervision of students and postdocs

2016 - now 4 current postdocs, 1 current PhD-student, supervisor of 2 completed PhD-theses (grades: Summa Cum Laude + Magna Cum Laude), 1 MSc-, and 2 BSc-theses;

2010 - 2014 assistant supervisor in 3 PhD theses at PMOD/WRC and ETH Zürich (official supervisors were various Professors at ETH).