

Alessandro Bemporad
CURRICULUM VITÆ
(April 2019)

- **PERSONAL DETAILS**

FIRST NAME: Alessandro FAMILY NAME: Bemporad
PLACE AND DATE OF BIRTH: Firenze (Italy); January 21st, 1976
NATIONALITY: Italian MARITAL STATUS: Married SEX: Male

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- **CURRICULUM STUDIORUM**

09/2002: Bachelor Degree in Physics (Specialization: Astronomy), University of Florence, Italy. **Thesis:** “Determination of Physical Parameters of Coronal Streamers”; **supervisors:** Dr. G. Poletto (poletto@arcetri.astro.it) and Dr. M. Romoli (romoli@arcetri.astro.it).

23/02/2006: PhD in Astronomy at the Arcetri Astrophysical Observatory, Florence, Italy. **Thesis:** “UV Spectroscopy of Coronal Plasmas and its application to different structures”; **supervisor:** Dr. G. Poletto (poletto@arcetri.astro.it).

05/2007: qualification for Mathematics and Physics Teaching at High Schools (after a 2 years Master).

01/02/2006 - 31/08/2007: Post-doc position at the INAF - Arcetri Astrophysical Observatory, Largo E. Fermi 5, 50125 Firenze - Italy.

01/09/2007 - 14/06/2011: Post-doc position at the INAF - Turin Astronomical Observatory, via Osservatorio 20, 10025 Pino Torinese (TO) - Italy.

- **PRESENT POSITION**

Since June 15, 2011: Research Astronomer (permanent) at the INAF - Turin Astrophysical Observatory.

- **RESEARCH FIELD**

Solar Physics: UV-EUV Spectroscopy of the Solar Corona and Solar Wind; determination of physical parameters of Coronal Streamers and Coronal Mass Ejections Characterization of shocks driven by CMEs. Determination of coronal magnetic field involved in CME-driven shocks. Off-limb observations of the low corona with Hinode/EIS spectrometer; study of solar polar jets; comparison between plasma parameters derived via *remote-sensing* techniques and *in situ* parameters measured by Ulysses instruments; Earth – Sun connections and Space Weather; UV Spectroscopy of Sungrazing Comets and determination of comet parameters; expertise on reduction and analysis of data acquired by SOHO/UVCS, SOHO/LASCO, STEREO/COR STEREO/EUVI, Hinode/EIS, Hinode/XRT instruments with IDL and the Solar Software (SSW). Stereoscopic reconstructions of prominences with data acquired by the STEREO telescopes.

Computing: *Operating Systems:* Unix, Windows. *Languages:* IDL, Fortran, Latex, HTML. *Applications:* Photoshop, Office Package. *Data Reduction:* Solar Software, Excel, Origin.

- **TEACHING EXPERIENCE**

Temporary Lecturer (2012-present) at the Physics Department of the University of Turin (ind.: FIS/05 Astronomia e Astrofisica) for the Course “*Elementi di Eliofisica e Meteorologia spaziale*” (48 hours, 6 Credits);

Supervisor of a Master Thesis in Physics in 2019 (Dott. R. Biondo) titled “*Ricostruzione MHD della spirale di Parker col codice PLUTO: approccio inverso*”;

Supervisor of a Ph.D. student in Physics (Dott. F. Frassati) for a Research Project titled “*Interplanetary shocks driven by Coronal Mass Ejections: a study based on data acquired by space-based instrumentations*” (10/2015-09/2018);

Supervisor of a Degree Thesis in Physics in 2015 (Dott. G. Guilluy) titled “*Optimization of the software for the detection of CMEs for METIS instrument on-board ESA-Solar Orbiter*”;

Co-Supervisor of a Master Thesis in Physics in 2014 (Dott. J. Girella) titled “*Magnetic Fields in the Solar Corona: Diagnostics from polarimetric observations of Total Eclipse*”;

Supervisor of a 2 years post-doc (Dr. R. Susino) within the European Project SWIFF “*Space Weather Integrated Forecasting Framework*” (10/2011-11/2013);

Supervisor of a Master Thesis in Physics in 2013 (Dott. M. Morra) titled “*Studio Spettroscopico dei Moti non termici del Plasma Coronale*”;

Supervisor of a Master (Erasmus) Thesis in Physics in 2013 (Dott. A. Parashiv) titled “*Characterization of Polar Jets in the Solar Corona with HINODE/XRT and SOHO data*”;

Supervisor of a Degree Thesis in Physics in 2009 (Dott. M. Calabrese) titled “*Determinazione di Parametri Fisici del Plasma Solare in un Buco Coronale da analisi di Dati Spettroscopici HINODE/EIS*”;

• ROLES OF RESPONSIBILITY

Member of the “Space Weather Working Group” of the Italian Space Agency – ASI (2017 – present)

Member of Directive Board of the Space Weather Italian Community (SWICO), Italy (2014 – 2016)

Member of the Ph.D Board, Physics Department, University of Turin (April 2016 – pres.)

Organizer of the Seminars, INAF –Turin Observatory, Pino Torinese (TO), Italy (2013 – pres.)

Member of the “MADAWG - Modelling & Data analysis working Group” for ESA-Solar Orbiter mission (2014 – pres.);

Co-I of the SWIFF Project (<http://www.swiff.eu>/ founded by ERC February 2011 – January 2014);

Co-I of the METIS Coronagraph for the future Solar Orbiter Mission (2009 – pres.);

Co-I for the ASPIICS Coronagraph for the future PROBA-3 Mission (2010 – pres.);

Member of the Faculty Committee for a PhD Thesis (Dr. S. Pucci), University of Florence, Italy (2014)

Member of the Faculty Committee for a PhD Thesis (Dr. A. Soenen), KU Leuven, Belgium (2011)

Member of a NASA-Heliophysics Guest Investigator Program Review Panel (February 2012);

Member of an ISSI-International Team on “Post-CME Current Sheets” (2006-2008, PI: Dr. G. Poletto).

Member of an ISSI-International Team on “Coronal Magnetometry: Building Tools for Discovery” (selected for 20013-2015, PI: Dr. S. Gibson);

• ORGANIZATION OF SCIENTIFIC MEETINGS

Chair of SOC and LOC for the next “European Solar Physics Meeting – ESPM16”, Turin (Italy), September 7-11, 2020;

Chair of SOC and LOC for the “3rd Meeting of the Italian Solar and Heliospheric Community”, Turin (Italy), October 17-19, 2018;

LOC Member for the “PROBA-3 Science Working Team Meeting #4”, Turin (Italy), May 18-19, 2016;

SOC Member for the “2016 Meeting of the Italian Solar & Heliospheric Community”, Rome (Italy), May 30 – June 1st, 2016;

Main Organizer of 4 Scientific Sessions for the 38th (2010), 39th (2012), 40th (2014) and for 41st (2016) COSPAR Meetings;

SOC Member for the “Riunione della Comunità Scientifica ed Eliosferica Italiana”, Catania (Italy), September 4-6, 2013;

Chair of SOC and LOC for the “Second Annual SWIFF Meeting”, January 14-16, 2013, Turin (Italy);

LOC Member of the “3rd Solar Orbiter Workshop”, Sorrento (Italy), May 25-29, 2009.

• PRIZES AND AWARDS

Winner of the “Stefan Hepites PRIZE” given by the Academia Romana, Bucharest, Romania given for merits in the study of “Genesis and Evolution of the Coronal Mass Ejections” (2011).

Winner of the “3rd JOSO (Joint Organization for Solar Observations) PRIZE” given to a young Solar Physicist for an outstanding paper (2009).

- **FOREIGN EXPERIENCES**

October, 1999 – March, 2000: Erasmus Project, undergraduate student at Université de Provence, Aix-Marseille I, France

August 2004, April – June, 2005: visiting scientist at the Harvard-Smithsonian CFA of Cambridge (MA, USA) for scientific collaboration with Dr. J. Raymond (raymond@cfa.harvard.edu).

February 2010 – July 2011: several visits at the CPA of the Leuven University (Belgium) for scientific collaborations with Drs. G. Lapenta (giovanni.lapenta@wis.kuleuven.be) and S. Poedts (stefaan.poedts@wis.kuleuven.be).

- **INVITED TALKS / PRESENTATIONS**

- 1) **Invited Review:** “UV Observations of Sungrazing comets with the SOHO/UVCS Instrument”, given at “AOGS 2nd Annual Meeting 2005”, Singapore, June 20 – 24, 2005.
- 2) **Invited Talk:** “Are CMEs globally affecting the Corona by Reconnections occurring on different scales?”, given at “37th COSPAR Meeting”, Montréal (Canada), 13 – 20 July, 2008.
- 3) **Invited Young Scientist Lecture:** “Multispacecraft Observations of a Prominence Eruption”, given at “STEREO-3/SOHO-22 Workshop”, Bournemouth, Dorset (UK), April 27 – May 1, 2009.
- 4) **Invited Lecture given by the JOSO Prize Winner:** “Multiple small-scale magnetic reconnections inside post-CME Current Sheets: a possible solution to inconsistencies between theory and observations”, given at “4th Central European Solar Physics Meeting”, Bairisch Koellendorf (Austria), Sept. 30-Oct. 2, 2009.
- 5) **Invited Talk:** “Observations of Coronal Mass Ejections in the Outer Corona”, given at “5th Solar Orbiter Workshop”, Bruges (Belgium), September 10-14, 2012.
- 6) **Invited Talk:** “Observations of Solar Storms in the Outer Corona”, given at the Conference “Solar and Heliospheric Influences in the Geospace”, Bucharest (Romania), October 1-5, 2012.
- 7) **Invited Talk:** “Study of CME-driven shocks with remote sensing data: recent results and prospects from future solar missions”, given at the “SCOSTEP’s 13th Quadrennial Solar-Terrestrial Physics Symposium”, Xi’an, Shanxi, China, October 12-18, 2014.
- 8) **Invited talk:** “Discovering the Heliosphere with new eyes: future opportunities from Solar Orbiter and PROBA3 missions”, given at the “13th European Space Weather Week”, Oostende (Belgium), November 14-18, 2016.
- 9) **Invited Talk:** “Coronal Mass Ejections and Shock Fronts observed in WL and UV emissions”, “7th Solar Orbiter workshop”, Granada (Spain), April 3-7, 2017.
- 10) **Invited talk:** “Coronagraphic observations of Solar Eruptions and Solar Wind in the UV range: past, present and future”, “EGU General Assembly 2019”, Vienna (Austria), April 9, 2019.
- 11) **Invited talk:** “Manifestations and Triggering of Coronal Mass Ejections as observed in the EUV-UV emissions”, “2nd China Europe Solar Physics Meeting – CESPM2”, Hvar (Croatia), May 7, 2019

- **INVITED SEMINARS/LECTURES**

- 1) **Invited Seminar:** “Solar Mass Ejections: what we learnt from Coronal Spectroscopy”, held at Center for Plasma Astrophysics (CPA), University of Leuven, Leuven (Belgium), April 22, 2010.
- 2) **Invited Seminar:** “Solar Mass Ejections: what we learnt from Coronal Spectroscopy”, held at Indian Institute for Astrophysics (IIA), Bangalore (India), July 24, 2012.
- 3) **Invited Seminar:** “Electro-optical Spectro-polarimeter for Ground- and Space-based Solar Coronagraphy”, Instituto de Astrofísica de Canarias (IAC), Tenerife (Spain), November 28, 2012.
- 4) **Invited Lecture:** “Study of Solar Eruptions with UV and WL data”, UniTo Colloquium, Physics Dept. of Turin University, April 12, 2013.

- 5) **Invited Seminar:** “Measuring Coronal Magnetic Fields with Shocks driven by CMEs”, held at the Astronomical Institute, Slovak Academy of Science (Slovak Republic), November 20, 2014.
- 6) **Invited Seminar:** “Coronagraphic observations of Solar Eruptions and Solar Wind in the UV range: past, present and future”, Purple Mountain Obs., Nanjing (China), March 27, 2018.

• OUTREACH SEMINARS

- 1) “Il Sole e le Relazioni Sole-Terra”, Liceo Machiavelli, Firenze (Italy), April 4, 2006.
- 2) Presentazione del Programma Didattico “Students around the World through IHY”, licei della provincia di Torino, April 13, 2008.
- 3) “Il Sole e le Relazioni Sole-Terra”, Planetario di Torino, Pino Torinese (Italy), April 21, 2009.
- 4) “L’astronomo? Sa leggere il futuro”, Festival della Scienza, Genova (Italy), October 24, 2011.
- 5) “Sole e Tempeste Solari verso il Massimo di Attività”, Osservatorio Astronomico G.D. Cassini, Perinaldo (Italy), April 6, 2013.
- 6) “Meteorologia Spaziale e Climatologia Terrestre: quali i collegamenti?”, Auditorium dell’Acquario di Genova, November 12, 2014.
- 7) “In viaggio verso il Sole sul Solar Orbiter”, Notte dei Ricercatori (Torino), September 26, 2014.
- 8) “Sole, tempeste solari e meteorologia spaziale”, Liceo Avogadro di Torino, May 12, 2015.
- 9) “In viaggio verso il Sole sul Solar Orbiter”, Notte dei Ricercatori (Torino), September 25, 2015.
- 10) “Sole, Tempeste Solari e Meteorologia Spaziale”, Corso di Astronomia per “Uni3 Torino Metropolis”, ITCS Sommeiller, February 29, 2016.
- 11) “In viaggio verso il Sole sul Solar Orbiter”, Notte dei Ricercatori (Torino), September 30, 2016.
- 12) “Visit to INAF-Turin Astrophysical Observatory”, Young Researcher Meeting, October 25, 2016.
- 13) “Il mestiere dei ricercatori”, Conferenza per la “Notte Europea dei Ricercatori”, Istituto Comprensivo Ricasoli, September 26, 2017.
- 14) “Convivere con la nostra stella: dalla quiete apparente del Sole alle tempeste spaziali”, Conferenze Pubbliche “I cieli di Brera”, March 21st 2018, INAF Brera Observatory.
- 15) “Il nostro posto al Sole”, ciclo di incontri divulgativi “Back into the Space” organized by “Celestia Taurinorum” Association, March 19, 2018, Polo Culturale “C’entro anch’io”, Turin.

• SCHOOLS & WORKSHOPS

During his career he attended 1 National School of Astrophysics (Isola d’Elba, Italy, May 11-17, 2003), 5 International Schools and Summer Colloquia (NCAR, Boulder, USA, May 31 – June 10, 2005; Montegufoni, Italy, October 3 -7, 2005; L’Aquila, Italy, March 26 - April 1, 2006; Les Diablerets, Switzerland, March 23-28, 2009; Turin, Italy, October 21-24, 2009) and 2 International Workshops (IAS Paris Orsay, France, November 13 – 15, 2007; Paris Observatory, France, April 19 – 24, 2008).

• CONFERENCES & MEETINGS

During his career he attended more than 50 International Meeting (listed below), where he presented his scientific results with 9 invited talks, 42 contributed talks and 17 poster presentations.

1. “III Meeting on the Italian Solar Research”, Isole Eolie (Italy), September 30 - October 4, 2002 (**1 talk**).
2. “ISCS Symposium 2003”, Tatranska Lomnica (Slovak Republic), June 23-28, 2003 (**1 poster**).
3. “XXXV COSPAR Meeting”, Paris (France), June 18-25, 2004 (**1 poster presentation**).
4. “IAU 226: Coronal & Stellar Mass Ejections”, Beijing (China), September 13-17, 2004 (**1 talk**).
5. “AOGS 2nd Annual Meeting 2005”, Singapore, June 20 – 24, 2005 (**1 invited talk**).
6. “11th Solar Physics Meeting”, Leuven (Belgium), Sept. 12 – 16, 2005 (**1 poster presentation**).
7. “IV Convegno della Ricerca Italiana in Fisica Solare”, Trieste (Italy), October 18 – 20, 2005 (**1 talk**).
8. “SOHO 17: 10 years of SOHO and beyond”, Giardini Naxos (Italy), May 7-12, 2006 (**1 talk**).
9. “LI Congresso della SAIT”, Firenze (Italy), April 17 - 20, 2007 (**1 talk**).
10. “SOHO 20 Meeting”, Ghent (Belgium), August 27 – 31, 2007 (**1 talk**).
11. ISSI International Team “Understanding the Role of Current Sheets in the Solar Eruptive Phenomena”, ISSI, Bern (Switzerland), October 23 – 26, 2006 (1st meeting), September 3 – 4, 2007 (2nd meeting) and March 3 – 6, 2008 (3rd and last meeting – **3 talks**).

12. “37th COSPAR Meeting”, Montréal (Canada), 13 – 20 July, 2008 (**1 invited talk and 2 poster pres.**).
13. “2nd Hinode Science Meeting”, Boulder (USA), Sept. 29 – October 3, 2008 (**1 talk**).
14. “STEREO-3/SOHO-22 Workshop”, Bournemouth, Dorset (UK), April 27 – May 1, 2009 (**Invited Young Scientist Lecture and poster presentation**).
15. “3rd Solar Orbiter Workshop”, Sorrento (Italy), May 25 – 29, 2009 (**poster presentation**).
16. “Solar Wind 12”, Saint Malò (France), June 21 – 26, 2009.
17. “4th Central European Solar Physics Meeting”, Bairisch Koellendorf (Austria), Sept. 30-Oct. 2, 2009 (**Invited Lecture given as the winner of the JOSO Prize**).
18. “2nd IAGA Meeting”, Cairo (Egypt), December 4 – 12, 2009 (**1 talk, 1 poster presentation**).
19. “38th COSPAR Meeting”, Bremen (Germany), 18 – 22 July, 2010 (**1 talk and 1 poster pres.**).
20. “4th Hinode Science Meeting”, Mondello (Italy), October 11 – 15, 2010 (**1 poster presentation**).
21. “1st METIS Workshop”, Firenze (Italy), February 10 – 11, 2011 (**1 talk presentation**).
22. “4th Solar Orbiter Workshop”, Telluride (USA), March 27 – 31, 2011 (**1 talk presentation**).
23. “STEREO-4/SDO-2/SOHO-25 Meeting”, Kiel (Germany), July 25 – 29, 2011 (**1 talk, 1 poster**).
24. “39th COSPAR Meeting”, Mysore (India), 14 – 22 July, 2012 (**1 talk and 2 poster pres.**).
25. “5th Solar Orbiter Workshop”, Bruges (Belgium), September 10-14, 2012 (**1 invited talk + 2 posters**).
26. “Solar and Heliospheric Influences in the Geospace”, Bucharest (Romania), October 1-5, 2012 (**1 invited talk**).
27. “Arcetri 2012 Workshop on Plasma Astrophysics”, Florence (Italy), November 5-8, 2012 (**1 talk**).
28. “2nd METIS Science & Technical Meeting”, Turin (Italy), December 12-13, 2012 (**1 talk**).
29. “2nd Annual SWIFF Meeting”, Turin (Italy), January 14-16, 2013 (**1 talk**).
30. “3rd METIS Science & Technical Meeting”, Naples (Italy), October 15-17, 2013 (**2 talks**).
31. “Riunione della Comunità Scientifica Solare ed Eliosferica italiana 2013”, Catania (Italy), September 4-8, 2013 (**1 talk**).
32. “40th COSPAR Meeting”, Moscow (Russia), 3 – 9 August, 2014 (**3 talks**).
33. “SCOSTEP’s 13th Quadrennial Solar-Terrestrial Physics Symposium”, Xian (China), 12 – 18 October 2014 (**1 talk**).
34. “Lorentz Workshop: Integrated plasma modelling of solar flares”, Leiden (Netherlands), 18 – 22 May 2015 (**1 talk**).
35. “First joint Solar Probe Plus – Solar Orbiter Workshop”, Artimino (Italy), 2 – 4 September 2015 (**2 talks**).
36. “Solarcast1 Workshop”, Copenhagen (Norway), 9 – 11 November 2015 (**1 talk**).
37. “Solar Orbiter MADAWG”, Bruxelles (Belgium), 19 – 20 November 2016 (**1 talk**).
38. “ISEST/MiniMax 2015 Workshop”, Mexico City (Mexico), 26 – 30 November 2015 (**1 talk**).
39. “Solar Orbiter MADAWG + SWT + SAP”, Alcalá de Henares (Spain), 11 – 14 April, 2016 (**1 talk**).
40. “2016 Meeting of the Italian Solar & Heliospheric Community”, Rome (Italy), May 30 – June 1st, 2016 (**1 poster**).
41. “13th European Space Weather Week”, Oostende (Belgium), November 14-18, 2016 (**1 invited talk**).
42. “L5 Tandem with L1 SW Mission”, London (UK), March 6-9, 2017.
43. “7th Solar Orbiter Meeting”, Granada (Spain), April 3-7, 2017 (**1 invited talk**).
44. “European Solar Physics Meeting”, Budapest (Bulgaria), September 4-8, 2017 (**1 talk**).
45. “2017 Workshop on Plasma Astrophysics”, Florence (Italy), October 23-26, 2017 (**1 talk**).
46. “Metis calibration Workshop”, Florence (Italy), September 26-27, 2017 (**1 talk**).
47. “PROBA-3 Science Working Team”, Wroclaw (Poland), December 4-6, 2017 (**1 talk**).
48. “Solar Orbiter MADAWG”, Toulouse (France), 22 – 24 January 2018.
49. “Solar Wind 15”, Bruxelles (Belgium), 18-22 June 2018 (**1 talk**).
50. “42nd COSPAR Meeting”, Pasadena (USA), 14-22 July 2018 (**2 talks and 2 poster pres.**).
51. “Solar Orbiter MADAWG”, Athens (Greece), 26 – 28 September 2018 (**1 talk**).
52. “Metis 6th Workshop”, Goettingen (Germany), November 21-23, 2018 (**1 talk**).
53. “Solar Orbiter MADAWG”, Madrid (Spain), 23 – 26 January 2019 (**1 talk**).

- **LANGUAGES**

Italian (native), **English** (very good), **French** (good)