

Curriculum Vitæ

PERSONAL INFORMATION

Family name, first name: Nava, Lara
 Nationality: Italian
 Present affiliation: INAF - Istituto Nazionale di Astrofisica
 Position: Marie Skłodowska-Curie Fellow
 Email: lara.nava@inaf.it
 ORCID: <https://orcid.org/0000-0001-5960-0455>

EDUCATION

- **PhD in Astronomy & Astrophysics**, Università degli Studi dell'Insubria 28 October, 2009
 Thesis: *Correlations and Spectral properties of Long and Short Gamma-Ray Bursts*
 PhD Advisors: *Drs. Gabriele Ghisellini, Giancarlo Ghirlanda, and Prof. Monica Colpi*
- **Laurea Specialistica in Physics – Elementary Particles** 27 April, 2006
 Università degli Studi di Milano–Bicocca, Italy
 Supervisors: *Drs. Gabriele Ghisellini and Giancarlo Ghirlanda*
 Final Grade: 110/110 cum laude
- **Laurea triennale in Physics** July, 2003
 Università degli Studi di Milano–Bicocca, Italy
 Supervisors: *Prof. Ettore Fiorini and Ezio Previtali*
 Final Grade: 110/110 cum laude

CURRENT POSITION

- **Postdoctoral Fellow** Since March 2017
 COFUND Marie Skłodowska-Curie Fellow
 Host Institutes: INAF – Osservatorio Astronomico di Brera
 INAF – Osservatorio Astronomico di Trieste

PREVIOUS POSITIONS

- **Postdoctoral Fellow** Sept 2016 – Feb 2017
 INFN – Trieste, Italy
 Supervisor: *Dr. Francesco Longo*
- **Postdoctoral Fellow** Nov 2013 – Sept 2016
 HUJI – Hebrew University of Jerusalem, Israel
 Supervisor: *Prof. Tsvi Piran*
- **Postdoctoral Fellow** Nov 2011 – Oct 2013
 APC – Astroparticules et Cosmologie/CNRS, Paris, France
 Supervisor: *Dr. Stefano Gabici*
- **Postdoctoral Fellow** Sept 2009 – Sept 2011
 SISSA – International School for Advanced Studies, Trieste, Italy
 Supervisor: *Prof. Annalisa Celotti*

FELLOWSHIPS, GRANTS, AWARDS

- **AstroFit2 - INAF COFUND Marie Skłodowska-Curie Actions** Since March 2017
 Score: 93.36. Host Institution: INAF - OAB and OATs, Italy
 Supervisor: *Dr. Fabrizio Tavecchio*
- **Marie Curie IEF** March 2014 – Feb 2016
 Score: 95.1. Host Institution: The Hebrew University of Jerusalem, Israel (HUJI)
 Scientist in charge: *Prof. Tsvi Piran*
- **L'Oréal-Italy and UNESCO for Women in Science** 2013
 Destined every year "to the five most outstanding young women researchers"
 Declined due to the concomitant offer of a postdoc position not compatible with the scholarship
- **Marie Curie EARA-EST fellowship** Nov 2007 – Feb 2008
 IAP – Institute d'Astrophysique de Paris/CNRS
 Supervisors: *Dr. Daigne and Dr. Mochkovitch*

Co-SUPERVISION OF STUDENTS

- **Gor Oganessian** (PhD candidate) since March 2015
X-ray flaring activity in GRBs, SISSA, Trieste, Italy
 Supervisor: *Prof. Annalisa Celotti*
- **Davide Miceli** (PhD candidate) since Nov 2017
Very-high energy radiation from GRBs, University of Udine, Udine, Italy
 Supervisor: *Dr. Francesco Longo*
- **Ludovica Crosato** (Undergrad student) since Feb 2018
Modeling of GRB radiation detected by the LAT, University of Trieste, Italy
 Supervisor: *Dr. Francesco Longo*
- **Francesco Nappo** (PhD student) Oct 2013 - Oct 2016
Modeling of afterglow radiation in GRBs, INAF/OAB – Observatory of Brera, Italy
 Supervisor: *Dr. Gabriele Ghisellini*
- **Enrico Peretti** (Master student) Nov 2015 - Oct 2016
Prospects for CTA observations of GRBs, Università di Trieste, Italy
 Supervisor: *Dr. Francesco Longo*
 Current position: PhD student at GSSI (L'Aquila, Italy)

TEACHING ACTIVITIES

- **Lectures on Gamma-Ray Bursts** 2017 and 2018
 8 hours per year, for PhD students
 SISSA, Trieste, Italy
- **Lectures on Gamma-Ray Bursts and Cosmic Rays** from 2014 to 2016
 6 hours per year as part of the class on High-Energy Astrophysics for PhD students
 SISSA, Trieste, Italy
- **Lectures on Gamma-Ray Bursts and Radiative Processes** 2012
 4 hours for students from the EXUL (Moscow, Russia) visiting APC (Paris)
 under a visiting program organized by PCCP
 APC/CNRS, Paris, France

ACTIVITY OF PEER-REVIEWER

About 20 papers for the following journals:

- **Journals:** ApJ, Nature Communication, A&A, MNRAS, PASJ, La Rivista del Nuovo Cimento

ACTIVITY AS EDITOR

- **Guest editor** for a Special Issue of the International Journal of Modern Physics D (IJMPD)
Special Issue Title: *Gamma-Ray Bursts in the Multi-messenger Era*, (in progress)

SELECTED CONFERENCE TALKS – since 2012

Items starting with a solid symbol (★) are invited talks.

- ★ *Shocks in Gamma-Ray Bursts: from theory to observations* March 2018
Conference "Astrophysical Shocks", AIP Potsdam, Germany, (**invited talk**)
- ★ *Gamma-Ray Burst prompt emission* Jan 2018
Conference "Clues on GRB origin from chemical evolution models", Sesto Pusteria, (**invited talk**)
- ★ *Gamma-Ray Burst prompt emission* Oct 2017
THESEUS Workshop, Naples, (**invited talk**)
- ★ *Gamma-Ray Bursts at high and very high energies* Sept 2017
Workshop "Astro@TS", Trieste, (**invited talk**)
- ★ *High-energy radiation from Gamma-Ray Bursts: origin and future prospects* Sept 2017
LXI Congresso Nazionale della SAI, Padova, (**invited talk**)
- ★ *The nature of radiative processes in prompt and afterglow radiation of GRBs* March 2017
Conference: "A TPC for MeV Astrophysics", Ecole Polytechnique Palaiseau, France, (**invited talk**)
- ★ *Radiative processes in prompt GRB emission* Nov 2016
Conference: "IV Congresso Nazionale GRB", Bergamo, Italy, (**invited review talk**)
- ☆ *Non-linear cosmic ray transport around supernova remnants* Sept 2016
Conference: "TeV Particle Astrophysics", CERN, 12-16 September 2016 (solicited)
- ☆ *Non-linear Cosmic Ray propagation close to the acceleration site* Aug 2015
Conference: "ICRC: 34th International Cosmic Ray Conf., 2015", The Hague, The Netherlands
- ☆ *Linear and Circular polarisation in GRB's afterglows* Dec 2014
Conference: "Swift: 10 Years of Discovery", Rome, Italy
- ★ *Anisotropic diffusion of cosmic rays escaping supernova remnants (invited)* Nov 2014
Conference: "Cosmic Rays from MeV to TeV energies", Paris, France
- ★ *Cosmic Ray propagation close to their acceleration site (invited)* June 2014
Conference: "CRs & their interstellar medium environment, CRISM-2014", Montpellier, France
- ☆ *Clustering of LAT light curves: a clue to the origin of the high-energy emission in GRBs* June 2014
Conference: "Gamma-Ray Bursts in the Multi-messenger Era", Paris, France
- ☆ *A hint to the origin of the extended emission in LAT GRBs: the relation between LAT luminosity and prompt energetics* Sept 2013
Conference: "Explosive Transients: Lighthouses of the Universe", Santorini, Greece
- ☆ *Clustering of LAT light curves: a clue to the origin of high-energy emission in GRBs* April 2013
Conference: "Huntsville Gamma Ray Burst Symposium", Nashville, USA

- ★ *Testing the external shock origin scenario for GeV emission in GRBs (invited)* Sept 2012
Conference: “III Congresso Nazionale GRB 2012”, Napoli, Italy
- ★ *Bulk Lorentz factors and comoving properties of GRBs (invited)* June 2012
Conference: “GRBs: Probing the Science, Progenitors and Environment”, Moscow
- ★ *On the origin of the high-energy emission in GRBs (invited)* April 2012
Conference: “AGILE 9th Science Workshop”, ASDC - ESRIN, Rome

Publication list

The complete list of published articles can be found in the SAO/NASA Astrophysics Data System (ADS, http://adsabs.harvard.edu/abstract_service.html) and includes 57 peer-reviewed articles: 3 refereed conference proceedings and 54 papers published in specialized journals (MNRAS, A&A, ApJ, Science, Nature, IJMPD). According to the ADS archive, the total number of citations is 2458 (as of March 2018), with an H-index = 29. The complete list is reported here below, followed by a list of published catalogues.

Refereed articles

1. **Nava L.**, *High Energy emission from Gamma-Ray Bursts*, 2018, review article to be published in IJMPD, in press
2. Ghirlanda G., Nappo F., Ghisellini G., Melandri A., Marcarini G., **Nava L.**, Salafia O. S., Campana S., Salvaterra R., *Bulk Lorentz factors of gamma-ray bursts*, 2018, A&A, 609, A112
3. Pian E., D’Avanzo P., Benetti S., et al., *Spectroscopic identification of r-process nucleosynthesis in a double neutron-star merger*, 2017, Nature, 551, 67
4. Ravasio M. E., Oganesyan G., Ghirlanda G., **Nava L.**, Ghisellini G., Pescalli A., Celotti A., *Consistency with synchrotron emission in the bright GRB 160625B observed by Fermi*, 2017, A&A in press, eprint arXiv:1711.03106
5. Abbott B. P., Abbott R., Abbott T. D., et al., *Multi-messenger Observations of a Binary Neutron Star Merger*, 2017, ApJL, 848, L12
6. Oganesyan G., **Nava L.**, Ghirlanda G., Celotti A., *Detection of Low-energy Breaks in Gamma-Ray Burst Prompt Emission Spectra*, 2017, ApJ, 846, 137
7. **Nava L.**, Benyamini D., Piran T., Shaviv N.-J., 2017, *Reconciling the diffuse Galactic γ -ray and the cosmic ray spectra*, MNRAS, 466, 3674
8. **Nava L.**, Desiante R., Longo F., Celotti A., Omodei N., Vianello G., Bissaldi E., Piran T., 2017, *Constraints on the bulk Lorentz factor of gamma-ray burst jets from Fermi/LAT upper limits*, MNRAS, 465, 811
9. Nappo F., Pescalli A., Oganesyan G., Ghirlanda G., Giroletti M., Melandri A., Campana S., Ghisellini G., Salafia, O.S., D’Avanzo P., Bernardini M. G., Covino S., Carretti E., Celotti A., D’Elia V., **Nava L.**, et al., 2017, A&A, 598A, 23
10. **Nava L.**, Gabici S., Marcowith A., Morlino G., Ptuskin V. S., 2016, *Non-linear diffusion of cosmic rays escaping from supernova remnants - I. The effect of neutrals*, MNRAS, 461, 3552
11. Beniamini P., **Nava L.**, Piran T., 2016, *A revised analysis of gamma-ray bursts’ prompt efficiencies*, MNRAS, 461, 51
12. **Nava L.**, Nakar E., Piran T., *Linear and circular polarization in ultra-relativistic synchrotron sources - implications to GRB afterglows*, MNRAS, 455 (2016) 1594

13. Beniamini P., **Nava L.**, Barniol Duran R., Piran T., *Energies of GRB blast waves and prompt efficiencies as implied by modelling of X-ray and GeV afterglows*, MNRAS, 454 (2015) 1073
14. Mochkovitch R. & **Nava L.**, *The $E_{\text{peak}}-E_{\text{iso}}$ relation and the internal shock model*, A&A, 577 (2015) 31
15. Melandri A., Bernardini M.G., D'Avanzo P., Sanchez-Ramirez R., Nappo F., **Nava L.** et al., *The high-redshift gamma-ray burst GRB 140515A. A comprehensive X-ray and optical study*, A&A, 581 (2015) 86
16. Ghirlanda G., Salvaterra R., Ghisellini G., Mereghetti S., Tagliaferri G., Campana S., Osborne J.P., O'Brien P., Tanvir N., Willingale D., Amati L., Basa S., Bernardini M.G., Burlon D., Covino S., D'Avanzo P., Frontera F., Gotz D., Melandri A., **Nava L.**, Piro L., Vergani S.D., *Accessing the population of high-redshift Gamma Ray Bursts*, MNRAS, 448 (2015) 2514
17. Bernardini M. G., Ghirlanda G., Campana S., Covino S., Salvaterra R., Atteia J.-L., Burlon D., Calderone G., D'Avanzo P., D'Elia V., Ghisellini G., Heussaff V., Lazzati D., Melandri A., **Nava L.**, Vergani S. D., Tagliaferri G., *Comparing the spectral lag of short and long gamma-ray bursts and its relation with the luminosity*, MNRAS, 446 (2015) 1129
18. **Nava L.**, Vianello G., Omodei N., et al., *Clustering of LAT light curves: a clue to the origin of high-energy emission in gamma-ray bursts*, MNRAS, 443 (2014) 3578
19. Nappo F., Ghisellini G., Ghirlanda G., Melandri A., **Nava L.**, Burlon D., *Afterglows from precursors in gamma-ray bursts. Application to the optical afterglow of GRB 091024*, MNRAS, 445 (2014) 1625
20. Maselli A., Melandri A., **Nava L.**, et al., *GRB 130427A: a Nearby Ordinary Monster*, Science, 343 (2014) 48
21. D'Avanzo P., Salvaterra R., Bernardini M. G., **Nava L.**, et al., *A complete sample of bright Swift short gamma-ray bursts*, MNRAS, 442 (2014) 2342
22. Ghirlanda G., Burlon D., Ghisellini G., Salvaterra R., Bernardini M. G., Campana S., Covino S., D'Avanzo P., D'Elia V., Melandri A., Murphy T., **Nava L.**, Vergani S. D., Tagliaferri G., *GRB Orphan Afterglows in Present and Future Radio Transient Surveys*, PASA, 31 (2014) 22
23. Melandri A., Covino S., Rogantini D., et al., *Optical and X-ray rest-frame light curves of the BAT6 sample*, A&A, 565 (2014) 72
24. **Nava L.**, Sironi L., Ghisellini G., Celotti A., Ghirlanda G., *Afterglow emission in gamma-ray bursts—I. Pair-enriched ambient medium and radiative blast-waves*, MNRAS, 433 (2013) 2107
25. **Nava L.**, Gabici S., *Anisotropic cosmic ray diffusion and gamma-ray production close to supernova remnants, with an application to W28*, MNRAS, 429 (2013) 1643
26. Ghirlanda G., Salvaterra R., Burlon D., et al., *Radio afterglows of a complete sample of bright Swift GRBs: predictions from present days to the SKA era*, MNRAS, 435 (2013) 2543
27. Ghirlanda G., Ghisellini G., Salvaterra R., **Nava L.**, et al., *The faster the narrower: characteristic bulk velocities and jet opening angles of GRBs*, MNRAS, 428 (2013) 1643
28. Covino S., Melandri A., Salvaterra R., Campana S., Vergani S. D., Bernardini M.G., D'Avanzo P., D'Elia V., Fugazza D., Ghirlanda G., Ghisellini G., Gomboc A., Jin Z.P., Kruhler T., Malesani D., **Nava L.**, Sbarufatti B., Tagliaferri G., *Dust extinctions for an unbiased sample of gamma-ray burst afterglows*, MNRAS, 432 (2013) 1231
29. **Nava L.**, Salvaterra R., Ghirlanda G., et al., *A complete sample of bright Swift Long Gamma Ray Bursts: testing the spectral-energy correlations*, MNRAS, 421 (2012) 1256
30. Longo F., Moretti E., **Nava L.**, et al., 2012, *Upper Limits on the high energy emission from Gamma-Ray Bursts observed by AGILE-GRID*, A&A, 547 (2012) 95
31. Ghirlanda G., **Nava L.**, Ghisellini G., Celotti A., Burlon D., Covino S., Melandri A., *Gamma-ray bursts in the comoving frame*, MNRAS, 420 (2012) 483

32. Ghirlanda G., Ghisellini G., **Nava L.**, Salvaterra R., et al., *The impact of selection biases on the $E_{peak} - L_{iso}$ correlation of gamma-ray bursts*, MNRAS, 422 (2012) 2553
33. Salvaterra R., Campana S., Vergani S. D., Covino S., D'Avanzo P., Fugazza D., Ghirlanda G., Ghisellini G., Melandri A., **Nava L.**, et al., *A complete sample of bright Swift Long GRBs: Sample presentation, Luminosity Function and evolution*, ApJ, 749 (2012) 68
34. Melandri A., Sbarufatti B., D'Avanzo P., Salvaterra R., Campana S., Covino S., Vergani S.D., **Nava L.**, et al., *The dark bursts population in a complete sample of bright Swift long GRBs*, MNRAS, 421 (2012) 1265
35. D'Avanzo P., Salvaterra R., Sbarufatti, **Nava L.**, et al., *A complete sample of bright Swift GRBs: X-ray afterglow luminosity and its correlation with the prompt emission*, MNRAS, 425 (2012) 506
36. **Nava L.**, Ghirlanda G., Ghisellini G., Celotti A., *Fermi/GBM and BATSE Gamma-Ray Bursts: comparison of the spectral properties*, MNRAS, 415 (2011) 3153
37. **Nava L.**, Ghirlanda G., Ghisellini G., Celotti A., *Spectral properties of 438 GRBs detected by Fermi/GBM*, A&A, 530 (2011) 21
38. Ghirlanda G., Ghisellini G., **Nava L.**, *Short and Long GRBs: same emission mechanism?*, MNRAS, 418 (2011) 109
39. Ghirlanda G., Ghisellini G., **Nava L.**, Burlon D., *Spectral evolution of Fermi/GBM short Gamma-Ray Bursts*, MNRAS, 410 (2011) 47
40. Ghirlanda G., **Nava L.**, Ghisellini G., *Spectral-Luminosity relation within individual Fermi GRBs*, A&A, 511 (2010) 43
41. Ghisellini G., Ghirlanda G., **Nava L.**, Celotti A., *GeV emission from Gamma Ray Bursts: a radiative fireball?*, MNRAS, 403 (2010) 926
42. Ghirlanda G., Ghisellini G., **Nava L.**, *The onset of the GeV afterglow of GRB 090510*, A&A, 510 (2010) 7
43. Ghirlanda G., **Nava L.**, Ghisellini G., Celotti A., Firmani C., *Short versus long gamma-ray bursts: spectra, energetics, and luminosities*, A&A, 496 (2009) 585
44. Firmani C., Cabrera J.I., Avila-Reese V., Ghisellini G., Ghirlanda G., **Nava L.**, Bosnjak Z., *Time-resolved spectral correlations of long-duration GRBs*, MNRAS, 393 (2009) 1209
45. **Nava L.**, Ghirlanda G., Ghisellini G., Firmani C., *Peak energy of the prompt emission of long gamma-ray bursts versus their fluence and peak flux*, MNRAS, 391 (2008) 639
46. Ghirlanda G., **Nava L.**, Ghisellini G., Firmani C., Cabrera J.I., 2008, *The $E_{peak} - E_{iso}$ plane of long gamma-ray bursts and selection effects*, MNRAS, 387 (2008) 319
47. Burlon D., Ghirlanda G., Ghisellini G., Lazzati D., **Nava L.**, Nardini M., Celotti A., *Precursors in Swift Gamma Ray Bursts with Redshift*, ApJ, 685 (2008) 19
48. **Nava L.**, Ghisellini G., Ghirlanda G., Cabrera J.I., Firmani C., Avila-Reese V., *The role of afterglow break-times as GRB jet angle indicators*, MNRAS, 377 (2007) 1464
49. Ghisellini G., Celotti A., Ghirlanda G., Firmani C., **Nava L.**, *Re-born fireballs in Gamma-Ray Bursts*, MNRAS, 382 (2007) 72
50. Cabrera J.I., Firmani C., Avila-Reese V., Ghirlanda G., Ghisellini G., **Nava L.**, *Spectral analysis of Swift long GRBs with known redshift*, MNRAS, 382 (2007) 342
51. Ghirlanda G., **Nava L.**, Ghisellini G., Firmani C., *Confirming the gamma-ray burst spectral-energy correlations in the era of multiple time breaks*, A&A, 466 (2007) 127
52. Ghisellini G., Ghirlanda G., **Nava L.**, Firmani C., 2007, *"Late prompt" emission in Gamma Ray Bursts?*, ApJ, 658 (2007) 75
53. **Nava L.**, Ghisellini G., Ghirlanda G., Tavecchio F., Firmani C., *On the interpretation of spectral-energy correlations in long Gamma-Ray Bursts*, A&A, 450 (2006) 471
54. Ghirlanda G., Ghisellini G., Firmani C., **Nava L.**, Tavecchio F., Lazzati D., *Cosmological constraints with GRB: homogeneous medium vs wind density profile*, A&A, 452 (2006) 839

Refereed conference proceedings

1. Tagliaferri G., Salvaterra R., Campana S. et al., *A complete sample of long bright Swift gamma ray bursts*, RSPTA, 371 (2013) 20235
2. Ghirlanda G., **Nava L.**, Ghisellini G., *Gamma ray bursts: Short vs. long*, AdSpR, 47 (2011) 1332
3. **Nava L.**, Ghisellini G., Ghirlanda G., Tavecchio F., Firmani C., *Wind circumburst density profile: A linear $E_p - E_\gamma$ correlation*, NCimB, 121 (2006) 1541

Published Catalogues

1. **Nava L.**, Ghirlanda G., Ghisellini G., Celotti A.
“*VizieR Online Data Catalog: Spectral properties of 438 GRBs (Nava+, 2011)*”, 2011, yCat 35300021
<http://vizier.cfa.harvard.edu/viz-bin/VizieR?-source=J/A+A/530/A21>
2. Melandri A., Covino S, Rogantini D, Salvaterra R, Sbarufatti B, Bernardini M, Campana S, D’Avanzo P., D’Elia V., Fugazza D., Ghirlanda G., Ghisellini G., **Nava L.**, Vergani S., Tagliaferri G.
“*VizieR Online Data Catalog: BAT6 sample optical and X-ray light curves (Melandri+, 2014)*”, yCat 35650072
<http://vizier.cfa.harvard.edu/viz-bin/VizieR?-source=J/A+A/565/A72>

April 1, 2018