

ENRICO MARIA NICOLA CORSARO

CURRICULUM VITAE ET STUDIORUM

General Information

Place and date of birth: 19th January 1986

Nationality: Italian

Gender: Male

E-mail: enrico.corsaro@oact.inaf.it

Foreign languages: Italian (mother tongue), English (excellent), French (limited), Spanish (limited)

Office phone: +39 095 73 32 264

Current position: Marie Skłodowska-Curie Fellow AstroFlt2 at INAF Osservatorio Astrofisico di Catania

Work address: via Santa Sofia 78, 95123, Catania, Italy

Education and postdoctoral positions

- 20/11/2007.** Bachelor Science in Physics, 110/110 cum laude, at Università di Catania (25 - classe di laurea di primo livello in Fisica)
Thesis: "*Materia Oscura - Mappatura 3D e Analisi Osservative*"
Supervisor Dr. Alessandro Lanzafame
- 09/10/2009.** Master Science in Physics, 110/110 cum laude, at Università di Catania, Italy (20/S - classe di laurea di secondo livello in Fisica)
Thesis: "*Supernovae di Tipo Ia come vincolo dei parametri cosmologici*"
Supervisor Prof. Lucio Paternò, co-supervisor Dr. Alfio Bonanno
- 07/03/2013.** Ph.D. in Physics, cum laude, at Università di Catania, Italy, and in collaboration with University of Sydney, Australia
Thesis: "*Asteroseismology in the Kepler era and from ground-based observations*"
Supervisors Prof. Leone Franco, Dr. Alfio Bonanno, Dr. Dennis Stello
- 01/10/2012.** Postdoctoral research associate at Katholieke Universiteit Leuven, Belgium
- 01/10/2014.** Research associate scientist SPACEINN at CEA - Commissariat à l'énergie atomique et aux énergies alternatives di Saclay, France
- 01/10/2016.** Marie Skłodowska-Curie Fellow AstroFlt2 (Astronomy Fellowships in Italy 2) COFUND INAF at INAF Osservatorio Astrofisico di Catania.

Professional activities and international mobility

- October 2017. Invited visitor at Observatoire de la Cote d'Azur, France
- June 2017. Invited visitor for seminar at Service d'Astrophysique CEA Saclay, France
- March 2017. Visitor for collaboration with Dr. Rafael A. Garcia at Service d'Astrophysique CEA Saclay, France
- February 2017. Visiting Prof. Pere L. Pallé from IAC Tenerife for collaboration on SONG project
- July 2016. Invited lecturer at "IV Azores International Advanced School in Space Sciences", Azores Islands, Portugal

6. June 2016. Invited visitor postdoc SPACEINN at Instituto de Astrofísica de Canarias (IAC), Tenerife, Spain
7. January 2016. Visitor postdoc SPACEINN at INAF OA Catania, Italy
8. December 2015. Invited visitor postdoc SPACEINN at Observatoire de la Côte d'Azur, France
9. October 2015. Invited lecturer at "Space-Inn school on astero/helioseismology and stellar/Solar physics", Dipartimento di Astrofisica - AIM Laboratory, CEA Saclay, France
10. May-June 2015. Visitor postdoc FP7 IRSES Marie Curie at New Mexico State University, New Mexico, and at High Altitude Observatory, Colorado, United States
11. March 2015. Invited visitor postdoc SPACEINN at School of Physics and Astronomy, University of Birmingham, United Kingdom
12. December 2014. Invited visitor postdoc SPACEINN at School of Physics and Astronomy, University of Birmingham, United Kingdom
13. June-July 2013. Visitor postdoc FP7 IRSES Marie Curie at Sydney Institute for Astrophysics, University of Sydney, Australia
14. September-December 2011. Visitor Ph.D. student FP7 IRSES Marie Curie at Sydney Institute for Astrophysics, University of Sydney, Australia
15. February-May 2011. Visitor Ph.D. student at Institute of Physics and Astronomy, Aarhus University, Denmark
16. January 2011. Visitor Ph.D. student at Leibniz-Institut für Astrophysik Potsdam, Germany

Scientific results

I have published 42 papers, of which 1 in Science magazine in 2011, 1 in Nature Astronomy (first author) in 2017, and other 32 papers (7 as first author) in leading peer-reviewed journals such as Astronomy & Astrophysics, Monthly Notices of the Royal Astronomical Society, The Astrophysical Journal, The Astronomical Journal. I have 8 proceedings in international conferences (the first one in 2012), 1 book chapter as proceeding from an international school for astrophysics (in press), 1 astronomy code library, 3 catalogues of fundamental stellar properties, 1 white paper and 1 code manual. At the present time I have more than 1350 citations and a Hirsch index $h = 17$ (SAO/NASA ADS http://www.adsabs.harvard.edu/abstract_service.html).

An updated list of the published papers (both reviewed and non-reviewed) is available at:

http://esoads.eso.org/cgi-bin/abs_connect?author=Corsaro,+E

Software developed for the scientific community

- *DIAMONDS: high-Dimensional And multi-MOdal Nested Sampling*. C++11 code for Bayesian parameter estimation and model comparison

Astrophysics Source Code Library, record ascl:1410.001, <http://adsabs.harvard.edu/abs/2014ascl.soft10001C>

Official website: <https://fys.kuleuven.be/ster/Software/Diamonds/>

GitHub repository: <https://github.com/EnricoCorsaro/DIAMONDS>

Reference publication: Corsaro E., De Ridder J., 2014, *DIAMONDS: A new Bayesian nested sampling tool. Application to peak bagging of solar-like oscillations*, A&A, 571, 71

<http://adsabs.harvard.edu/abs/2014A%26A...571A..71C>

User Guide Manual: https://fys.kuleuven.be/ster/Software/Diamonds/DIAMONDS_UserGuide

- *AARG: Asymptotic Analysis of Red Giants*. IDL code for the analysis of asymptotic asteroseismic parameters in red giant stars.

Reference publication: Corsaro E., Stello D., Huber D., et al. 2012b, *Asteroseismology of the Open Clusters NGC 6791, NGC 6811, and NGC 6819 from 19 Months of Kepler Photometry*, *ApJ*, 757, 190

<http://adsabs.harvard.edu/abs/2012ApJ...757..190C>

Ph.D. thesis with software documentation:

<http://archivia.unict.it/handle/10761/1378>

Contributions and participations to Conferences/Workshops/International Schools

1. Invited speaker for seminar in Observatoire de la Cote d'Azur, Nice, France, 17/10/2017
2. Invited speaker (invited talk) in Asteroseismology and Optical Interferometry Workshop, Nice, France, 04/10/2017
<https://asterinter2017.sciencesconf.org/>
3. Invited speaker (invited talk) in LXI Congresso della Società Astronomica Italiana, Padova, Italy, 13/09/2017
<https://www.ict.inaf.it/indico/event/539/>
4. Participant speaker (contributed talk) in GES2017 IV Science Meeting, Catania, Italy, 07/09/2017
<http://www.oact.inaf.it/ges2017/>
5. Participant with poster presentation in TASC3 & KASC10 Workshop "TESSting Stellar Astrophysics", Birmingham, UK, 17/07/2017
<http://www.tasc3kasc10.com/>
6. Participant speaker (contributed talk) in NASA Kepler & K2 Science Conference IV, Mountain View, CA, USA, 19/06/2017
<https://keplerscience.arc.nasa.gov/scicon4/>
7. Invited speaker for seminar at Service d'Astrophysique CEA Saclay, Paris, France, 13/06/2017
8. Speaker for seminar at INAF OACT, Catania, Italy, 05/03/2017
9. Invited speaker for seminar (remote) for Center for Extrasolar Planetary Systems, Boulder, Colorado, USA, 17/01/2017
<http://ceps.space-science.org/>
10. Invited lecturer (lecture and hands-on tutorial with proceeding to be published in 2017) in "IV Azores International Advanced School in Space Sciences" entitled "Asteroseismology and Exoplanets: Listening to the Stars and Searching for New Worlds", Faial, Azores Islands, Portugal, 19/07/2016
<http://www.iaastro.pt/research/conferences/faial2016/index.html?opt=main>
11. Participant speaker (contributed talk) in joint TASC2 & KASC9 Workshop – SPACEINN & HELAS8 Conference, Seismology of the Sun and the Distant Stars 2016 - Using Today's Successes to Prepare the Future, Terceira, Azores Islands, Portugal, 15/07/2016
<http://www.iaastro.pt/research/conferences/spacetk16/>
12. Invited speaker for seminar in Instituto de Astrofísica de Canarias, Tenerife, Canary Islands, Spain, 21/06/2016,
<http://iactalks.iac.es/talks/view/932>
13. Participant speaker (contributed talk) in Semaine de l'Astrophysique Française della Société Française d'Astronomie & d'Astrophysique (SF2A), Lyon, France, 14/06/2016
<http://2016.sf2a.eu/>
14. Invited speaker for seminar in Observatoire de la Cote d'Azur, Nice, France, 8/12/2015
https://lagrange.oca.eu/sites/default/IMG/pdf/Corsaro_Seminar8Dec2015.pdf

15. Invited lecturer (lecture and hands-on tutorial) in "Space-Inn school on astero/helioseismology and stellar/Solar physics", Astrophysics Department - AIM Laboratory, CEA Saclay, France, 27/10/2015
http://irfu.cea.fr/Sap/en/Phocea/Vie_des_labos/News/index.php?id_news=3270
<https://www.spaceinn.eu/events/spaceinn-school-on-asterohelioseismology-and-stellarsolar-physics/>
16. Participant speaker (contributed talk) in KASC8/TASC1 Workshop: Space asteroseismology: The next generation, Aarhus, Denmark, 17/06/2015
<http://sac.au.dk/currently/the-kasc8tasc1-workshop/>
17. Speaker for seminar at UCAR High Altitude Observatory, Boulder, CO, United States, 04/06/2015
<https://www2.hao.ucar.edu/events/2015-may/enrico-corsaro-service-dastrophysique-irfudsmcea-saclay>
18. Speaker for seminar at Astronomy Department, New Mexico State University, Las Cruces, NM, United States, 11/05/2015
<http://astronomy.nmsu.edu/dept/html/frontpage.top.shtml>
19. Participant in PLATO Stellar Science Meeting, Paris, France, 09/04/2015,
http://www.ias.u-psud.fr/PLATO_STESCI/PLATO_STESCI_WP120_M1.html
20. Participant speaker (contributed talk) in SpaceInn Global Helioseismology Team Meeting, Freiburg, Germany, 11/03/2015
www.spaceinn.eu/events/spaceinn-global-helioseismology-team-meeting/
21. Participant speaker in Red Giants Peak Bagging workshop, Gottingen, Germany, 09/03/2015
22. Invited speaker for seminar at University of Birmingham, School of Physics and Astronomy, Birmingham, United Kingdom, 05/03/2015
<http://www.birmingham.ac.uk/schools/physics/index.aspx>
23. Participant in 2nd SOLARNET Meeting, Palermo, Italy, 02/02/2015
<http://www.astropa.inaf.it/Solarnet2015/Solarnet2015.html>
24. Speaker for seminar at Katholieke Universiteit - Instituut voor Sterrenkunde, Leuven, Belgium, 15/01/2015
25. Participant in PLATO 2.0 Science Conference, Taormina, Italy, 03/12/2014
http://www.oact.inaf.it/plato/PPLC/PLATO_Meetings/Entries/2014/12/2_PLATO_2014_in_Taormina_1.html
26. Participant speaker (contributed talk) in CoRoT Symposium 3, Kepler KASC7 joint meeting: The Space Photometry Revolution, Toulouse, France, 06/06/2014
corot3-kasc7.sciencesconf.org/
27. Invited speaker in SpaceInn Workshop 4.1 - Peak-bagging in Helio- and Asteroseismology, Sandos San Blas, Tenerife, Spain, 11/03/2014
www.iac.es/congreso/spaceinn-wp41/
28. Invited speaker for seminar at University of Birmingham - School of Physics and Astronomy, Birmingham, United Kingdom, 16/12/2013
<http://www.birmingham.ac.uk/schools/physics/index.aspx>
29. Participant in Red Giants Peak Bagging workshop, Leuven, Belgium, 09/12/2013
30. Participant in International Francqui Symposium - What asteroseismology has to offer to astrophysics, Brussels, Belgium, 02/12/2013
fys.kuleuven.be/ster/meetings/francqui/
31. Participant speaker (contributed talk) in World of Clusters, Padova, Italy, 23/09/2013
web.oapd.inaf.it/clusters/index.html
32. Participant speaker in Red Giants Peak Bagging workshop, Amsterdam, The Netherlands, 02/06/2013
33. Speaker for seminar at Observatory of Paris, Meudon, France, 28/01/2013

34. Participant speaker (contributed talk) in KASC6 - A New Era of Stellar Astrophysics with Kepler, Sydney, Australia, 24/06/2013
kasc6.com
35. Participant in Asteroseismology with large time-resolved astronomical surveys, Leuven, Belgium, 19/09/2012
36. Invited speaker (invited talk) in KASC5 - Extending the Kepler Mission: New Horizons in Asteroseismology, Balatonalmadi, Hungary, 18/06/2012
<http://www.diamond-congress.hu/kasc5/>
37. Participant speaker (contributed talk) in The modern era of Helio- and Asteroseismology, Obergurgl, Austria, 20/05/2012
www.esf.org/index.php?id=9140
38. Speaker for seminar at Department of Physics and Astronomy, Aarhus University, Aarhus, Denmark, 03/03/2011
39. Participant student with poster presentation in Canary Winter School in Asteroseismology, La Laguna, Tenerife, Spain, 14/11/2010 <http://www.iac.es/winterschool/2010/>

Research projects

1. European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie grant agreement n° 664931 AstroFit2 Research Fellow (3 years).
2. European Community's Seventh Framework Programme FP7-PEOPLE-2010 Marie Curie Actions, International Research Staff Exchange Scheme (IRSES) grant agreement n° 269194 - Sounding Stars With Kepler (ASK). Coordinator of the project: Dr. Joanna Molenda. Contact person CEA Saclay: Dr. Rafael Garcia (1 month).
3. European Community's Seventh Framework Programme FP7-2007-2013 under grant agreement n° 312844 (SPACEINN). Contact person CEA Saclay: Dr. Rafael Garcia (2 years).
4. European Community's Seventh Framework Programme FP7-PEOPLE-2010 Marie Curie Actions, International Research Staff Exchange Scheme (IRSES) grant agreement n° 269194 - Sounding Stars With Kepler (ASK). Coordinator of the project: Dr. Joanna Molenda. Contact person INAF OACT: Dr. Alfio Bonanno (4 months).
5. PRIN-INAF 2010 Asteroseismology - Looking inside the stars with space and ground-based observations: Coordinator: Dr. Ennio Poretti. Contact person INAF OACT: Dr. Ventura Rita (3 years).
6. Doctoralship "Fondo Giovani" at Dipartimento di Fisica e Astronomia, Università di Catania (3 years).
7. European Research Council under the European Community's Seventh Framework Programme (FP7/2007–2013)/ERC grant agreement n° 227224 Probing Stellar Physics and Testing Stellar Evolution Through Asteroseismology (PROSPERITY). PI: Prof. Conny Aerts (1 year).
8. Flanders Research Foundation (FWO - G.0728.11). PI: Dr. Joris De Ridder (1 year).
9. Belgian Federal Science Policy Office (Gaia-DPAC - C90291). PI: Dr. Joris De Ridder (1 year).

Responsibilities

- P.I. of the INAF CHIPP proposal "Asteroseismic analysis of a large sample of stars using the Bayesian inference code DIAMONDS", July 2017 - January 2018
- Member of APOKASC-2 (APOGEE-2 + KASC) Science Core Team since 2015

- Member of NASA TESS Asteroseismic Science Consortium (TASC) since 2016
<https://tasoc.dk/>
- Member of ESA PLATO consortium for Stellar Analysis System since 2015
- Member of the project Space-Inn (Exploration of Space Data for Innovative Helio- and Asteroseismology) FP7-SPACE-2012-1. From 2014 to 2016
<https://www.spaceinn.eu/>
- Responsible for Kepler science research at Instituut voor Sterrenkunde Katholieke Universiteit Leuven, Belgium. From 2013 to 2014
- Member of NASA Kepler Asteroseismic Science Consortium (KASC) since 2009
<http://kasoc.phys.au.dk/>
- Referee for The Astrophysical Journal, Astronomy & Astrophysics, Monthly Notices of the Royal Astronomical Society

Teaching experience

1. Official co-supervisor for Astronomy Project of **Mr. Marco Müllner** of University of Innsbruck, in collaboration with INAF OACT, during summer 2017
2. Official co-supervisor for Bachelor Science thesis in Physics of **Mr. Marco Müllner** of University of Innsbruck, in collaboration with INAF OACT, during spring 2017
3. Lecturer for 44 Ph.D. students from 20 different world wide institutions, during the “**IV Azores International Advanced School in Space Sciences**” entitled “Asteroseismology and Exoplanets: Listening to the Stars and Searching for New Worlds”, Azores Islands, Portugal, July 2016
4. Official supervisor for Master Science class M1 École Polytechnique Université Paris-Saclay of **Mr. Fusshoeller Kevin** at CEA Saclay, France, during 2016
5. Official co-supervisor for Master Science class M2 Université Blaise Pascal, Clermont Ferrand, of **Mr. Dumont Thibaut** at CEA Saclay, France, during 2016
6. Lecturer for 14 Ph.D. students from 6 world wide institutions, during the “**Space-Inn school on astero/helioseismology and stellar/Solar physics**”, at CEA Saclay, France, October 2015
7. Unofficial co-supervisor of **Dr. Paul Beck** at Instituut voor Sterrenkunde, Katholieke Universiteit Leuven, Belgium, during 2013.
8. Official supervisor for Master Science thesis in Physics of **Mr. Buysschaert Bram** at Instituut voor Sterrenkunde, Katholieke Universiteit Leuven, Belgium, in ERASMUS exchange with Aarhus Universitet in Denmark, during 2013
9. Official supervisor of Bachelor Science thesis in Physics of **Ms. Broucke Celine, Mr. Skoruppa Enrico e Mr. Zwinnen Jasper** at Instituut voor Sterrenkunde, Katholieke Universiteit Leuven, during 2013
10. Co-supervisor for Bachelor Science thesis of **Mr. Scalia Cesare**, at Dipartimento di Fisica e Astronomia, Università di Catania, during 2012

Media, communication and outreach

1. Media INAF, "Dimmi come ribolli e ti dirò che metallicità hai", 28/07/2017
<http://www.media.inaf.it/2017/07/28/sessanta-giganti-rosse/>
2. Université Paris-Saclay Press Release, "Des étoiles tournées vers le passé", 20/04/2017
<https://www.universite-paris-saclay.fr/fr/actualite/des-etoiles-tournees-vers-le-passe>
3. Pour La Science, "L'axe de rotation des étoiles, témoin de leur naissance", 18/04/2017
http://www.pourlascience.fr/ewb_pages/a/actu-l-axe-de-rotation-des-etoiles-temoin-de-leur-naissance-38371.php
4. Science & Vie, "Ces étoiles gardent des traces d'avant leur naissance", 17/03/2017
https://www.science-et-vie.com/article/ces-etoiles-gardent-des-traces-d-avant-leur-naissance-8045?utm_medium=Social&utm_campaign=Echobox&utm_source=Twitter&utm_term=Autofeed&link_time=1489752492#xtor=CS1-2
5. Focus.it, "La rotazione delle stelle racconta la loro storia", 14/03/2017
<http://www.focus.it/scienza/spazio/ammassi-stellari-asse-di-rotazione-delle-stelle>
6. Repubblica Scienza, "Quei sismi stellari che scuotono le teorie evolutive delle stelle", 14/03/2017
http://www.repubblica.it/scienze/2017/03/14/news/quei_sismi_stellari_che_scuotono_le_teorie_evolutive_delle_stelle-160543323/
7. University of Sydney South Wales Press Release, "Starquakes reveal surprises about birth of stars in our galaxy", 13/03/2017
<https://www.science.unsw.edu.au/news/study-starquakes-reveal-surprises-about-birth-stars-our-galaxy>
8. CNRS Press Release, "Les axes de rotation des étoiles nous parlent de leur naissance", 13/03/2017
<http://www2.cnrs.fr/presse/communiqu/4943.htm>
9. CEA Saclay Press Release, "The axis conspiracy", 13/03/2017
http://irfu.cea.fr/Sap/en/Phocea/Vie_des_labos/Ast/ast.php?t=fait_marquant&id_ast=3963
10. Media INAF, "Stelle, c'è un imprinting familiare nello spin", 13/03/2017
<http://www.media.inaf.it/2017/03/13/dimmi-come-ruoti/>
11. Media INAF Video Interview, "Dimmi come ruoti e ti dirò come sei nata", 13/03/2017
<https://www.youtube.com/watch?v=B3fiOIL AeOw>
12. Media INAF, "Oscillazioni solari nel riflesso di Nettuno", 19/12/2016
<http://www.media.inaf.it/2016/12/19/oscillazioni-solari-nel-riflesso-di-nettuno/>
13. Media INAF, "Un'orchestra stellare per Kepler", 07/04/2011
<http://www.media.inaf.it/2011/04/07/un%e2%80%99orchestra-stellare-per-kepler/>

Catania,
August 2017