

CURRICULUM VITAE

Alessandro Bressan

Posizione accademica

Macrosettore:

Settore Concorsuale: 02/C1-ASTRONOMIA, ASTROFISICA, FISICA DELLA TERRA E DEI PIANETI

Settore Scientifico Disciplinare: FIS/05 ASTRONOMIA E ASTROFISICA

Qualifica: Professore di I Fascia

Anzianità nel ruolo: dal 1/08/2011

Sede Universitaria: TRIESTE

Struttura di afferenza: SISSA, AREA DI FISICA

Posizioni ricoperte precedentemente

1995-2010 Associate Astronomer , INAF, OAPD

1989-1995 Associate Researcher , INAF, OAPD

Publicazioni Scientifiche (ultimi 4 ANNI)

Refereed Publications in the period 2017-2020

1. Pastorelli, G., Marigo, P., Girardi, L., Aringer, B., Chen, Y., Rubele, S., Trabucchi, M., Bladh, S., Boyer, M. L., Bressan, A., et al., "Constraining the thermally pulsing asymptotic giant branch phase with resolved stellar populations in the Large Magellanic Cloud", (2020), *\mnras*, 498, 3283., cit.11
2. Gaia Collaboration, Helmi, A., van Leeuwen, F., McMillan, P. J., Massari, D., Antoja, T., Robin, A. C., Lindegren, L., Bastian, U., Arenou, F., Babusiaux, et al., "Gaia Data Release 2. The kinematics of globular clusters and dwarf galaxies around the Milky Way (Corrigendum)", (2020), *\aap*, 642, C1., cit.1
3. Di Carlo, U. N., Mapelli, M., Bouffanais, Y., Giacobbo, N., Santoliquido, F., Bressan, A., Spera, M., & Haardt, F., "Binary black holes in the pair instability mass gap", (2020), *\mnras*, 497, 1043., cit.50
4. Girardi, L., Boyer, M. L., Johnson, L. C., Dalcanton, J. J., Rosenfield, P., Seth, A. C., Skillman, E. D., Weisz, D. R., Williams, B. F., Bhattacharya, A. R., Bressan, A., et al., "PHAT XX. AGB Stars and Other Cool Giants in M31 Star Clusters", (2020), *\apj*, 901, 19., cit.1
5. Marigo, P., Cummings, J. D., Curtis, J. L., Kalirai, J., Chen, Y., Tremblay, P.-E., Ramirez-Ruiz, E., Bergeron, P., Bladh, S., Bressan, A., et al., "Carbon star formation as seen through the non-monotonic initial-final mass relation", (2020), *Nature Astronomy*, 4, 1102., cit.9

6. Gaia Collaboration, Helmi, A., van Leeuwen, F., McMillan, P. J., Massari, D., Antoja, T., Robin, A. C., Lindegren, L., Bastian, U., Arenou, F., Babusiaux, et al., "Gaia Data Release 2. Kinematics of globular clusters and dwarf galaxies around the Milky Way (Corrigendum)", (2020), *\aap*, 637, C3., cit.1
7. Valentini, M., Murante, G., Borgani, S., Granato, G. L., Monaco, P., Brighenti, F., Tornatore, L., Bressan, A., & Lapi, A., "Impact of AGN feedback on galaxies and their multiphase ISM across cosmic time", (2020), *\mnras*, 491, 2779., cit.14
8. Mapelli, M., Spera, M., Montanari, E., Limongi, M., Chieffi, A., Giacobbo, N., Bressan, A., & Bouffanais, Y., "Impact of the Rotation and Compactness of Progenitors on the Mass of Black Holes", (2020), *\apj*, 888, 76., cit.46
9. Chen, Y., Girardi, L., Fu, X., Bressan, A., Aringer, B., Dal Tio, P., Pastorelli, G., Marigo, P., Costa, G., & Zhang, X., "YBC: a stellar bolometric corrections database with variable extinction coefficients. Application to PARSEC isochrones", (2019), *\aap*, 632, A105., cit.17
10. Costa, G., Girardi, L., Bressan, A., Chen, Y., Goudfrooij, P., Marigo, P., Rodrigues, T. S., & Lanza, A., "Multiple stellar populations in NGC 1866. New clues from Cepheids and colour-magnitude diagram", (2019), *\aap*, 631, A128., cit.5
11. Tress, M., Ferreras, I., Pérez-González, P. G., Bressan, A., Barro, G., Domínguez-Sánchez, H., & Eliche-Moral, C., "A deeper look at the dust attenuation law of star-forming galaxies at high redshift", (2019), *\mnras*, 488, 2301., cit.3
12. Girardi, L., Costa, G., Chen, Y., Goudfrooij, P., Bressan, A., Marigo, P., & Bellini, A., "On the photometric signature of fast rotators", (2019), *\mnras*, 488, 696., cit.3
13. Artale, M. C., Mapelli, M., Giacobbo, N., Sabha, N. B., Spera, M., Santoliquido, F., & Bressan, A., "Host galaxies of merging compact objects: mass, star formation rate, metallicity, and colours", (2019), *\mnras*, 487, 1675., cit.32
14. Nanni, A., Groenewegen, M. A. T., Aringer, B., Rubele, S., Bressan, A., van Loon, J. T., Goldman, S. R., & Boyer, M. L., "The mass-loss, expansion velocities, and dust production rates of carbon stars in the Magellanic Clouds", (2019), *\mnras*, 487, 502., cit.14
15. Pastorelli, G., Marigo, P., Girardi, L., Chen, Y., Rubele, S., Trabucchi, M., Aringer, B., Bladh, S., Bressan, A., Montalbán, J., et al., "Constraining the thermally pulsing asymptotic giant branch phase with resolved stellar populations in the Small Magellanic Cloud", (2019), *\mnras*, 485, 5666., cit.52
16. Costa, G., Girardi, L., Bressan, A., Marigo, P., Rodrigues, T. S., Chen, Y., Lanza, A., & Goudfrooij, P., "Mixing by overshooting and rotation in intermediate-mass stars", (2019), *\mnras*, 485, 4641., cit.14
17. Valentini, M., Borgani, S., Bressan, A., Murante, G., Tornatore, L., & Monaco, P., "Chemical evolution of disc galaxies from cosmological simulations", (2019), *\mnras*, 485, 1384., cit.12
18. Spera, M., Mapelli, M., Giacobbo, N., Trani, A. A., Bressan, A., & Costa, G., "Merging black hole binaries with the SEVN code", (2019), *\mnras*, 485, 889., cit.97
19. Gaia Collaboration, Eyer, L., Rimoldini, L., Audard, M., Anderson, R. I., Nienartowicz, K., Glass, F., Marchal, O., Grenon, M., Mowlavi, N., Holl, et al.,

- "Gaia Data Release 2. Variable stars in the colour-absolute magnitude diagram", (2019), *\aap*, 623, A110., cit.74
20. Mapelli, M., Giacobbo, N., Toffano, M., Ripamonti, E., Bressan, A., Spera, M., & Branchesi, M., "The host galaxies of double compact objects merging in the local Universe", (2018), *\mnras*, 481, 5324., cit.20
 21. Valentini, M., Bressan, A., Borgani, S., Murante, G., Girardi, L., & Tornatore, L., "Colour-magnitude diagram in simulations of galaxy formation", (2018), *\mnras*, 480, 722., cit.8
 22. Goudfrooij, P., Girardi, L., Bellini, A., Bressan, A., Correnti, M., & Costa, G., "The Minimum Mass of Rotating Main-sequence Stars and its Impact on the Nature of Extended Main-sequence Turnoffs in Intermediate-age Star Clusters in the Magellanic Clouds", (2018), *\apjl*, 864, L3., cit.15
 23. Rubele, S., Pastorelli, G., Girardi, L., Cioni, M.-R. L., Zaggia, S., Marigo, P., Bekki, K., Bressan, A., Clementini, G., de Grijs, R., et al., "The VMC survey - XXXI: The spatially resolved star formation history of the main body of the Small Magellanic Cloud", (2018), *\mnras*, 478, 5017., cit.38
 24. Gaia Collaboration, Mignard, F., Klioner, S. A., Lindegren, L., Hernández, J., Bastian, U., Bombrun, A., Hobbs, D., Lammers, U., Michalik, D., Ramos-Lerate, et al., "Gaia Data Release 2. The celestial reference frame (Gaia-CRF2)", (2018), *\aap*, 616, A14., cit.106
 25. Gaia Collaboration, Spoto, F., Tanga, P., Mignard, F., Berthier, J., Carry, B., Cellino, A., Dell'Oro, A., Hestroffer, D., Muinonen, K., Pauwels, et al., "Gaia Data Release 2. Observations of solar system objects", (2018), *\aap*, 616, A13., cit.43
 26. Gaia Collaboration, Helmi, A., van Leeuwen, F., McMillan, P. J., Massari, D., Antoja, T., Robin, A. C., Lindegren, L., Bastian, U., Arenou, F., Babusiaux, et al., "Gaia Data Release 2. Kinematics of globular clusters and dwarf galaxies around the Milky Way", (2018), *\aap*, 616, A12., cit.379
 27. Gaia Collaboration, Katz, D., Antoja, T., Romero-Gómez, M., Drimmel, R., Reylé, C., Seabroke, G. M., Soubiran, C., Babusiaux, C., Di Matteo, P., Figueras, et al., "Gaia Data Release 2. Mapping the Milky Way disc kinematics", (2018), *\aap*, 616, A11., cit.231
 28. Gaia Collaboration, Babusiaux, C., van Leeuwen, F., Barstow, M. A., Jordi, C., Vallenari, A., Bossini, D., Bressan, A., Cantat-Gaudin, T., van Leeuwen, M., Brown, et al., "Gaia Data Release 2. Observational Hertzsprung-Russell diagrams", (2018), *\aap*, 616, A10., cit.433
 29. Gaia Collaboration, Brown, A. G. A., Vallenari, A., Prusti, T., de Bruijne, J. H. J., Babusiaux, C., Bailer-Jones, C. A. L., Biermann, M., Evans, D. W., Eyer, L., Jansen, et al., "Gaia Data Release 2. Summary of the contents and survey properties", (2018), *\aap*, 616, A1., cit.4716
 30. Fu, X., Bressan, A., Marigo, P., Girardi, L., Montalbán, J., Chen, Y., & Nanni, A., "New PARSEC data base of α -enhanced stellar evolutionary tracks and isochrones - I. Calibration with 47 Tuc (NGC 104) and the improvement on RGB bump", (2018), *\mnras*, 476, 496., cit.24
 31. Lapi, A., Pantoni, L., Zanisi, L., Shi, J., Mancuso, C., Massardi, M., Shankar, F., Bressan, A., & Danese, L., "The Dramatic Size and Kinematic Evolution of Massive Early-type Galaxies", (2018), *\apj*, 857, 22., cit.25
 32. Nanni, A., Marigo, P., Girardi, L., Rubele, S., Bressan, A., Groenewegen, M. A. T., Pastorelli, G., & Aringer, B., "Estimating the dust production rate of carbon stars in the Small Magellanic Cloud", (2018), *\mnras*, 473, 5492., cit.23

33. Fu, X., Romano, D., Bragaglia, A., Mucciarelli, A., Lind, K., Delgado Mena, E., Sousa, S. G., Randich, S., Bressan, A., Sbordone, L., et al., "The Gaia-ESO Survey: Lithium enrichment histories of the Galactic thick and thin disc", (2018), *\aap*, 610, A38., cit.22
34. Valentini, M., Murante, G., Borgani, S., Monaco, P., Bressan, A., & Beck, A. M., "On the effect of galactic outflows in cosmological simulations of disc galaxies", (2017), *\mnras*, 470, 3167., cit.14
35. Lapi, A., Mancuso, C., Bressan, A., & Danese, L., "Stellar Mass Function of Active and Quiescent Galaxies via the Continuity Equation", (2017), *\apj*, 847, 13., cit.14
36. Gaia Collaboration, Clementini, G., Eyer, L., Ripepi, V., Marconi, M., Muraveva, T., Garofalo, A., Sarro, L. M., Palmer, M., Luri, X., Molinaro, et al., "Gaia Data Release 1. Testing parallaxes with local Cepheids and RR Lyrae stars", (2017), *\aap*, 605, A79., cit.71
37. Bossini, D., Miglio, A., Salaris, M., Vrad, M., Cassisi, S., Mosser, B., Montalbán, J., Girardi, L., Noels, A., Bressan, A., et al., "Kepler red-clump stars in the field and in open clusters: constraints on core mixing", (2017), *\mnras*, 469, 4718., cit.23
38. Miglio, A., Chiappini, C., Mosser, B., Davies, G. R., Freeman, K., Girardi, L., Jofré, P., Kawata, D., Rendle, B. M., Valentini, M.,, Bressan, A., .. et al., "PLATO as it is : A legacy mission for Galactic archaeology", (2017), *Astronomische Nachrichten*, 338, 644., cit.49
39. Mancuso, C., Lapi, A., Prandoni, I., Obi, I., Gonzalez-Nuevo, J., Perrotta, F., Bressan, A., Celotti, A., & Danese, L., "Galaxy Evolution in the Radio Band: The Role of Star-forming Galaxies and Active Galactic Nuclei", (2017), *\apj*, 842, 95., cit.33
40. Rosenfield, P., Girardi, L., Williams, B. F., Johnson, L. C., Dolphin, A., Bressan, A., Weisz, D., Dalcanton, J. J., Fouesneau, M., & Kalirai, J., "A New Approach to Convective Core Overshooting: Probabilistic Constraints from Color-Magnitude Diagrams of LMC Clusters", (2017), *\apj*, 841, 69., cit.8
41. Gaia Collaboration, van Leeuwen, F., Vallenari, A., Jordi, C., Lindegren, L., Bastian, U., Prusti, T., de Bruijne, J. H. J., Brown, A. G. A., Babusiaux, C., Bailer-Jones, et al., "Gaia Data Release 1. Open cluster astrometry: performance, limitations, and future prospects", (2017), *\aap*, 601, A19., cit.77
42. Slemer, A., Marigo, P., Piatti, D., Aliotta, M., Bemmerer, D., Best, A., Boeltzig, A., Bressan, A., Brogгинi, C., Bruno, C. G., et al., "²²Ne and ²³Na ejecta from intermediate-mass stars: the impact of the new LUNA rate for ²²Ne(p, γ)²³Na", (2017), *\mnras*, 465, 4817., cit.25
43. Marigo, P., Girardi, L., Bressan, A., Rosenfield, P., Aringer, B., Chen, Y., Dussin, M., Nanni, A., Pastorelli, G., Rodrigues, T. S., et al., "A New Generation of PARSEC-COLIBRI Stellar Isochrones Including the TP-AGB Phase", (2017), *\apj*, 835, 77., cit.436

Non Refereed Publications

44. Gaia Collaboration, Luri, X., Chemin, L., Clementini, G., Delgado, H. E., McMillan, P. J., Romero-Gomez, M., Balbinot, E., Castro-Ginard, A., Mor, R., Ripepi, et al., "VizieR Online Data Catalog: MC structure and properties

- (Gaia Collaboration+, 2021)", (2020), VizieR Online Data Catalog, J/A+A/649/A7., cit.0
45. Gaia Collaboration, Smart, R. L., Sarro, L. M., Rybizki, J., Reyle, C., Robin, A. C., Hambly, N. C., Abbas, U., Barstow, M. A., de Bruijne, J. H. J., Bucciarelli, et al., "VizieR Online Data Catalog: Gaia Catalogue of Nearby Stars - GCNS (Gaia collaboration, 2021)", (2020), VizieR Online Data Catalog, J/A+A/649/A6., cit.0
 46. Bossini, D., Miglio, A., Salaris, M., Vrand, M., Cassisi, S., Mosser, B., Montalbán, J., Girardi, L., Noels, A., Bressan, A., et al., "VizieR Online Data Catalog: Kepler red-clump stars in NGC6819 and NGC6791 (Bossini+, 2017)", (2020), VizieR Online Data Catalog, J/MNRAS/469/4718., cit.0
 47. Nanni, A., Marigo, P., Groenewegen, M. A. T., Aringer, B., Rubele, S., Bressan, A., Girardi, L., Pastorelli, G., & Bladh, S., "Constraining dust properties in circumstellar envelopes of C-stars in the Magellanic Clouds: Optical constants and grain size of carbon dust", (2020), IAU General Assembly, 405., cit.2
 48. Nanni, A., Groenewegen, M. A. T., Aringer, B., Marigo, P., Rubele, S., & Bressan, A., "The dust production rate of carbon-rich stars in the Magellanic Clouds", (2019), IAU Symposium, 343, 478., cit.1
 49. Costa, G., Girardi, L., Bressan, A., Marigo, P., Chen, Y., Kanniah, B., Lanza, A., & Rodrigues, T. S., "A critical test to disentangle the role of overshooting and rotation in stars", (2019), IAU Symposium, 343, 375., cit.0
 50. Gaia Collaboration, Eyer, L., Rimoldini, L., Audard, M., Anderson, R. I., Nienartowicz, K., Glass, F., Marchal, O., Grenon, M., Mowlavi, N., Holl, et al., "VizieR Online Data Catalog: Gaia DR2. Variable stars in CMD (Gaia Collaboration+, 2019)", (2019), VizieR Online Data Catalog, J/A+A/623/A110., cit.0
 51. Montalbán, J., Bressan, A., Girardi, L., Rodrigues, T., Bossini, D., Miglio, A., Scudlaire, R., Trabucchi, M., & Marigo, P., "PARSEC evolutionary tracks and isochrones including seismic properties", (2018), Rediscovering Our Galaxy, 334, 343., cit.0
 52. Obii, I., Okere, B., Bressan, A., & Perrotta, F., "Star formation Rate calibrations with infrared data of young star-forming regions in NGC6946 and M100: the effect of metallicity and IMF upper mass cutoff", (2018), 42nd COSPAR Scientific Assembly, 42, E1.18-6-18., cit.0
 53. Gaia Collaboration, Babusiaux, C., van Leeuwen, F., Barstow, M., A., Jordi, C., Vallenari, A., Bossini, A., Bressan, A., Cantat-Gaudin, T., van Leeuwen, M., et al., "VizieR Online Data Catalog: 46 open clusters GaiaDR2 HR diagrams (Gaia Collaboration, 2018)", (2018), VizieR Online Data Catalog, J/A+A/616/A10., cit.0
 54. Gaia Collaboration, Helmi, A., van Leeuwen, F., Mc Millan, P. J., Massari, D., Antoja, T., Robin, A. C., Lindegren, L., Bastian, U., Arenou, F., Babusiaux, et al., "VizieR Online Data Catalog: Gaia DR2 sources in GC and dSph (Gaia Collaboration+, 2018)", (2018), VizieR Online Data Catalog, J/A+A/616/A12., cit.0
 55. Fu, X., Romano, D., Bragaglia, A., Mucciarelli, A., Lind, K., Delgado Mena, E., Sousa, S. G., Randich, S., Bressan, A., Sbordone, L., et al., "VizieR Online Data Catalog: Li enrichment histories of the thick/thin disc (Fu+, 2018)", (2017), VizieR Online Data Catalog, J/A+A/610/A38., cit.0

56. Gaia Collaboration, van Leeuwen F., Vallenari, A., Jordi, C., Lindegren, L., Bastian, U., Prusti, T., de Bruijne, J. H. J., Brown, A. G. A., Babusiaux, C., Bailer-Jones, C. A. L., et al., "VizieR Online Data Catalog: Gaia DR1 open cluster members (Gaia Collaboration+, 2017)", (2017), VizieR Online Data Catalog, J/A+A/601/A19., cit.0
57. Obi, I. A., Bressan, A., Perrotta, F., Silva, L., Vega, O., Chen, Y., Lapi, A., Mancuso, C., Girardi, L., Granato, G. L., et al., "Modelling the UV to radio SEDs of nearby star-forming galaxies: new Parsec SSP for Grasil", (2017), arXiv e-prints, arXiv:1702.02230., cit.3
58. Nanni, A., Marigo, P., Groenewegen, M. A. T., Aringer, B., Pastorelli, G., Rubele, S., Girardi, L., Bressan, A., & Bladh, S., "Estimating dust production rate of carbon-rich stars in the Small Magellanic Cloud", (2017), *\memsai*, 88, 393., cit.1
59. Pastorelli, G., Marigo, P., Girardi, L., Rubele, S., Nanni, A., Chen, Y., Bressan, A., Aringer, B., Trabucchi, M., Montalbán, J., et al., "Calibrating the TP-AGB phase through resolved stellar populations in the Small Magellanic Cloud", (2017), *\memsai*, 88, 262., cit.0
60. Rosenfield, P., Girardi, L., Dalcanton, J., Johnson, L. C., Williams, B. F., Weisz, D. R., Bressan, A., & Fouesneau, M., "A Novel Approach to Constraining Uncertain Stellar Evolution Models", (2017), American Astronomical Society Meeting Abstracts #229, 229, 154.26., cit.0

Titoli

Membro Commissione di Abilitazione Scientifica Nazionale (2018-2020)

Referee for international astrophysics journals

Referee for the European Research Council

Honours/Awards

2004 ISI Highly Cited Researcher 2001

2006 Commendatore dell'Ordine al Merito della Repubblica Italiana

Memberships

1993 International Astronomical Union (IAU)

2005 Associazione Gruppo 2003, Charter Member

Scientific Impact (From ADS)

430 papers published. **8** with > **1000**; **4** with **500-1000**; **48** with **100-500** citations; total citations ~ **35,000**. h-index: **74**; g-index: **187**; i10-index: **207**; tori-index **109**; **13** currently highly cited papers since 2012 (ISI-WOS).

Grants

-Italian PI of the EU TMR- Research Network "Galaxy Formation and Evolution", (ERBFMRX-CT96-0086, PI Simon White, MPI Garching), 1996-2000, Euro ~200000.

-PI ASI-COFIS Project "Mid-infrared study of Early Type Galaxies with SPITZER", INAF-OAPD, 2007-2010, Euro82000

- PI ASI COFIS WP3240 " Stars and Stellar Population Synthesis", (INAF OAPD, OATE, OAFI) 2007-2010, Euro116000
- RU2 Coordinator PRIN INAF 2014 "Star formation and evolution in galactic nuclei", SISSA,2014-2016, Euro12500.
- SISSA RU Coordinator, PRIN 2017, 20173ML3WW_002, SISSA,2019-, Euro107000.

Achievements

-Comprehensive databases of stellar tracks and isochrones for SSP studies (Bressan+ 1993, Bertelli al. 1994, Girardi+ 2000); -first consistent chemo-spectrophotometric-galaxy evolution models (Bressan+ 1994); discovery of galaxy downsizing (Bressan+ 1996); first isochrones in the MID and FAR Infrared (Bressan+ 1998); first consistent spectrophotometric dusty galaxy evolution models (Silva+ 1998); first panchromatic (Far-UV to radio) galaxy models (Bressan+ 2002); SPITZER ST discovery of Silicate Emission from AGB stars in Early Type Galaxies (Bressan+ 2006); most exhaustive database of stellar evolutionary tracks (PARSEC, Bressan+ 2012); prediction of the mass spectrum of compact stellar remnants (Spera+ 2015 main figure used by Abbott+ 2016 in "ASTROPHYSICAL IMPLICATIONS OF THE BINARY BLACK HOLE MERGER GW150914"); PARSEC paper by Bressan+ 2012, is the "Most cited MNRAS paper" of the decade (https://twitter.com/ras_journals/status/1220733505174429698)

RESEARCH INTERESTS

-Stellar Structure and Evolution

Physics of stars, stellar evolutionary tracks.

Formation of stellar Black Holes and prediction of the mass spectrum of compact stellar remnants.

Dark matter annihilation effects on the first stars.

-Population synthesis

Isochrones in several photometric systems for stellar population studies of resolved stellar systems.

-Spectral Evolution of Galaxies.

Panchromatic integrated properties of star clusters and galaxies, from the far ultraviolet to mid/far Infrared and millimetre/radio wavelengths. Chemo-spectro-photometric models of galaxies with integrated spectra and narrow band indices.

Dusty star forming galaxies. Early Type galaxies in the Mid Infrared.

-Interstellar medium

Dust Formation in AGB and Massive stars and prediction of dust yields from stellar environments.

PARSEC provides a superb isochrone fitting to low main sequence stars "Gaia Data Release 2. Observational Hertzsprung-Russell diagrams, GAIA Collaboration, 2018";

