

Manuel Arca Sedda

Curriculum vitae

Current position

Dates	June 1st 2017 - present
Position	Postdoctoral fellow
Employer	Astronomisches Rechen Institute, Zentrum für Astronomie der Universität Heidelberg
Topics	Galactic dynamics, Black Holes dynamics, Galactic nuclei, Computational Astrophysics

Education

2010-2013	Ph.D. student in Astronomy with fellowship , thesis defense Jan. 14th, 2014
Institution	“Sapienza”- Università di Roma
2008-2010	Master’s degree in Astronomy and Astrophysics, grade: 110/110 cum laude
Institution	Sapienza-Università di Roma, Piazzale Aldo Moro 5, 00185 Roma
2005-2008	Bachelor’s degree in Physics and Astrophysics, grade 107/110
Institution	Sapienza-Università di Roma

Research and Professional Experience

09/2017	Research visit at the Nicolaus Copernicus Astronomical Center in Warsaw: collaboration with Prof. Mirek Giersz , Prof. Chris Belczynski, Prof. Matthew Benacquista, Prof. Rainer Spurzem and Abbas Askar on the evolution of stellar black hole binaries and double neutron stars
06/2016	Research visit at the Astronomische Rechen Institut in Heidelberg: collaboration with Prof. Rainer Spurzem and Dr. Sci. Peter Berczik on the evolution of supermassive black hole binaries and galactic nuclei
09/2015	Postdoctoral fellow as P.I. of the “MEGaN” project at the Università di Roma “Sapienza” (12 months)
05/2014	Postdoctoral fellow at the Università di Roma “Tor Vergata” (12 months)

Publication list

Referred publications (published as principal author)

M. Arca-Sedda, R. Capuzzo-Dolcetta, “The MEGaN project I. Missing formation of massive nuclear clusters and tidal disruption events by star clusters - massive black hole interactions”, 2017, MNRAS, doi: 10.1093/mnras/stx1586

M. Arca-Sedda, R. Capuzzo-Dolcetta, “Lack of nuclear clusters in dwarf spheroidal galaxies: implications for massive black holes formation and the cusp/core problem”, 2016, MNRAS, 464 (3): 3060-3070, doi: 10.1093/mnras/stw2483

M. Arca-Sedda, R. Capuzzo-Dolcetta, “Globular clusters as tracers of the host galaxy mass distribution: the Fornax dSph test case”, 2016, MNRAS, 461 (4), p. 4335-4342

M. Arca-Sedda, R. Capuzzo-Dolcetta, M. Spera, “The dearth of nuclear star clusters in bright galaxies”, 2016, MNRAS, 456 (3), p. 2457-2466

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- M. Arca-Sedda, “On the formation of compact, massive subsystems in stellar clusters and its relation with intermediate mass black holes”, 2015, MNRAS, 455 (1), p. 35-50
- M. Arca-Sedda, R. Capuzzo-Dolcetta, F. Antonini, A. Seth, “Henize 2-10: the ongoing formation of a nuclear star cluster around a massive black hole”, 2015, ApJ, 806, 220
- M. Arca-Sedda, R. Capuzzo-Dolcetta, “The Globular Cluster migratory origin of Nuclear Star Clusters”, 2014, MNRAS, 444 (2), 3738-3755
- M. Arca-Sedda, R. Capuzzo-Dolcetta, “Dynamical friction in cuspy galaxies”, 2014, ApJ, 785, 51

Non-referred publications

- M. Arca-Sedda and A. Gualandris, 2018, “Gravitational wave sources from inspiralling globular clusters in the Galactic Centre and similar environments”, submitted to MNRAS
- A. Askar, M. Arca-Sedda and M. Giersz, 2018, “MOCCA-SURVEY Database I: Galactic Globular Clusters Harboursing a Black Hole Subsystem”, arxiv: 1802.05284, submitted to MNRAS
- M. Arca-Sedda, A. Askar and M. Giersz, 2018, “MOCCA-SURVEY Database I. Unravelling black hole subsystems in globular clusters”, arxiv: 1801.00795, submitted to MNRAS
- M. Arca-Sedda et al., 2017, “Supermassive black holes coalescence mediated by massive perturbers: gravitational waves emission and the Milky Way - Andromeda fate”, arxiv: 1712.05810, submitted to MNRAS
- K. Belczynski, A. Askar, M. Arca-Sedda et al., 2017, “The origin of the first neutron star – neutron star merger”, arxiv: 1712.00632, submitted to A&A
- M. Arca-Sedda, B. Kocsis and T. Brandt, 2017, “Gamma-ray and X-ray emission from the Galactic Centre: hints on the nuclear star cluster formation history”, arxiv: 1709.03119, submitted to MNRAS
- M. Arca-Sedda and R. Capuzzo-Dolcetta, 2017, “The MEGaN project II. Gravitational waves sources around a super-massive black hole”, arxiv: 1709.05567, submitted to MNRAS

Proceedings

- M. Arca-Sedda, ““Dark” systems in globular clusters: GWs emission and limits on the formation of IMBHs”, 2016, Memorie della Societa Astronomica Italiana, v.87, p.674
- M. Arca-Sedda, “Star clusters as tracers of galactic nuclei properties”, 2016, Memorie della Societa Astronomica Italiana, v.87, p.638
- M. Donnari, M. Arca-Sedda, M. Merafina, “Massive black holes interactions and merging during the assembly of heavy sub-structures in the centre of galaxy clusters”, 2016, Memorie della Societa Astronomica Italiana, v.87, p.685
- M. Donnari, M. Arca-Sedda, M. Merafina, “Can dark energy explain the observed outflow in galaxy clusters? ”, 2016. To be published in the proceedings of the 50th rencontres de Moriond
- M. Arca-Sedda, M. Donnari, M. Merafina, “Formation and evolution of heavy sub-structures in the centre of galaxy clusters: the local effect of dark energy”, 2016. To be published in the proceedings of the 50th rencontres de Moriond
- M. Arca-Sedda, R. Capuzzo-Dolcetta, “Will a nuclear stellar disk form in the galaxy Henize 2-10?”, 2015. To be published in the proceedings of the MG14 Meeting on General Relativity Published by World Scientific Publishing Co. Pte. Ltd.

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M. Donnari, M. Merafina, M. Arca-Sedda, “The local effect of Dark Energy in galaxy clusters”, 2015. To be published in the proceedings of the MG14 Meeting on General Relativity Published by World Scientific Publishing Co. Pte. Ltd.

M. Arca-Sedda, R. Capuzzo-Dolcetta, “Dynamical Friction in Cuspidal Galaxies”, 2015. Proceedings of the MG13 Meeting on General Relativity (in 3 Volumes). Edited by R. Kjell et al. Published by World Scientific Publishing Co. Pte. Ltd.

M. Spera, M. Arca-Sedda, and R. Capuzzo-Dolcetta, “The interaction between super-massive black holes and globular clusters”. Talk presented at the IAU Symposium No. 312, Beijing, 25-29 August 2014. To be published in the Proceedings IAU Symposium No. 312, Star Clusters and Black Holes in Galaxies and Across Cosmic Time.

M. Arca-Sedda, R. Capuzzo-Dolcetta, “Compact Massive Objects in galaxies: the sequence from Massive Black Holes to Nuclear Star Clusters”. Talk presented at the EWASS 2013 meeting, Turku, 8-13 July 2013. http://users.utu.fi/lporti/EWASS2013/Galaxies/arca_sedda.pdf

R. Capuzzo-Dolcetta, M. Arca-Sedda, M. Spera, “The Dense Stellar Systems Around Galactic Massive Black Holes”, 2013, Talk given at the Workshop on: Nuclei of Seyfert galaxies and QSOs - Central engine and conditions of star formation, November 6-8, 2012, Max-Planck-Institut fuer Radioastronomie (MPIfR), Bonn, Germany. To be published in the Conference Proceedings, Proceedings of Science publisher, arXiv:1302.2509

R. Capuzzo-Dolcetta, M. Arca Sedda, A. Mastrobuono Battisti, D. Punzo, M. Spera, “High performance astrophysics computing”, ASP Conference Series, 2012, vol. 453, arXiv: 1112.6121v1

M. Arca Sedda, R. Capuzzo-Dolcetta, “Dynamical friction in cuspy galaxies”, ASP Conference Series, 2012, vol. 453, arXiv: 1112.6101v1

Awards and Fellowships

- 11/2015 **FONDECYT Postdoctoral Fellowship** (declined)
- 09/2015 **Indipendent Postdoctoral Fellowship** on the indepent research program “The MEGaN project: modelling the evolution of galactic nuclei”, funded by the University of Rome Sapienza through the grant 52/2015
- 05/2014 **Postdoctoral Fellowship** supported by the MIUR (Ministry of the Italian University and Research) through the grant *PRIN*2010/2011

Accepted Proposals

- 01/09/2015 **Awarded** as **principal investigator** of the research program “The MEGaN project” supported by the University of Rome Sapienza through the grant 52/2015
- 09/09/2013 **Awarded** as co-author of the ISCRA Class C Computing Grant “IsC12_SBH-SDSC” at CINECA (50000 hours on EURORA cluster.)
- 01/09/2012 **Awarded** as co-author for the research project “Astrophysics of the central galactic regions”, supported by the University of Rome “Sapienza”.
- 19/12/2011 **Awarded** as co-author of the ISCRA Class C Computing Grant “IsC07_DirectNB” at CINECA (50000 hours on PLX cluster).

Teaching Experience

- 09/2015 I gave several lectures during the course “Theoretical Astrophysics”, course of the Dept. of Physics master’s degree program at the University of Rome Sapienza

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Invited seminars

- 01/06/2017 Invited talk during the trilateral meeting of the Cooperation Germany/Ukraine/Russia led by Prof. Rainer Spurzem, supported by the Volkswagen Foundation, Heidelberg - GER
- 29/11/2016 Invited by Prof. Monica Colpi to give a seminar at the Department of Physics of the University of Milan "Bicocca", Milan - ITA
- 16/06/2016 Invited by Dr. Alessandra Mastrobuono-Battisti to give a seminar during the "Galaxy Coffe" at the Max Planck Institut fur Astronomie, Heidelberg (HD) - GER
- 15/06/2016 Invited by Prof. Rainer Spurzem to give a seminar during the "Teeminar" weekly meeting of the the stellar dynamics group at the Astronomisches Rechen Institut, University of Heidelberg, Heidelberg (HD) - GER
- 27/04/2015 Invited by Prof. Michela Mapelli to give a seminar at the Astronomical Observatory of Padova, Padova (PD) - ITA

Selected list of Workshops and Conferences

- 16-19/10 2017 Contributed talk and poster at the conference GALDARK2017, Max Planck Institut fur Astronomie, (Heidelberg) - GER
- 18-22/09 2017 Contributed talk at the MODEST17 meeting in Prague - CZ
- 04-10/12 2016 Contributed talk, as speaker, and co-author of a poster, awarded as the best poster, in the conference "Stellar aggregates over mass and spatial scales", Bad Honnef (Bonn) - GER
- 26-28/09 2016 Member of the Local Organizing committee of the conference "Perspectives of GPU computing in Science", Rome (RM) - ITA
- 17-22/04 2016 Contributed talk and poster at the MODEST16 meeting, Bologna (BO) - ITA
- 12-18/07 2015 Contributed talk at the "14th Marcel Grossman meeting", Rome (RM) - ITA
- 15-17/09 2014 Member of the Local Organizing committee of the conference "Perspectives of GPU computing in Physics and Astrophysics", Rome (RM) - ITA
- 16-21/06 2014 Contributed talk at the conference "Exreme Astrophysics in an ever-changing Universe", Ierapetra (CRE) - GRE
- 02-07/06 2014 Contributed talk and poster at the conference "The Unquiet Universe", Cefalú (PA) - ITA
- 08-13/07 2013 Contributed talk in plenary session at the "EWASS 2013: European Week of Astronomy and Space Science", Turku (VSS) - FIN
- 01-07/07 2012 Contributed talk at the "13th Marcel Grossman meeting", Stockholm (AB) - SWE
- 20/05-03/06 2012 Invited talk at the workshop-summer school "A window to the formation of the Milky Way: Dynamics, observational and numerical astrophysics of dense stellar systems", Aspen (CO) - US

Publication summary

24 publications: 8(+2 submitted) published as first author in ApJ and MNRAS. H-index: 5 (Google Scholar)

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