

Curriculum Vitae of Antonino Del Popolo

I. Personal Data

Name: Antonino Del Popolo
Date of birth: 1965/5/30
Place of birth: Montalbano Elicona, Province: Messina
Home address: via IV Novembre 28, Uboldo (VA), Italy
Research address: Catania University,
Physics and Astronomy Department, Section of Astrophysics
Via S. Sofia 78, 95123 Catania ITALY,
Tel.: +390957332315
E-mail: adelpopolo@oact.inaf.it; antonino.delpopolo@unibg.it
Marital Status: Divorced

II. Educational Background

Academic degrees

2006	Master in Quantitative Finance
1994	Ph.D. in Physics, University of Catania (Title: The evolution of clusters of Galaxies in a Standard CDM model)
1990 – 1985	Degree in Physics (B.Sc, M.Sc.) obtained in 1990 at the University of Bologna with mark 110/110 (summa cum laude) (Title: Pulsars observation as a probe of General Relativity)
1984 – 1979	“Licenza scientifica” (General certificate of Education), Institute “E. Amari” in Patti (Me) with a 60/60 mark

Academic appointments

2013-2009	Permanent: Researcher & "Professore Aggiunto" at Catania University
2016 (March)	Visiting Professor at IMP, CAS, Lanzhou, China
2015, 2013-2012	Visiting Professor at IIP, UFRN, NATAL, RN
2013-2012	Visiting Professor at IAG-USP, Sao Paulo
2013-2009	Researcher & "Professore Aggiunto" at Catania University
2008-2006	Professor at Istanbul Technical University
2005-2003	Assist. Professor at Bogazici University (Istanbul)
2003-2003	Professor at St. K. Ochridski (Sofia)
2003 – 2000	Researcher at Feza Gursev Institute (Istanbul)
2001 – 2000	Visiting professor at Bogazici University (Istanbul)
1999	Visit at U.E.F.S, (Universidade Estadual de Feira de Santana), Bahia, Brasil
1999 (March)-1998	Researcher at C.R.L. (Communications Research Laboratory), Tokyo

III. Teaching experience

2016-2014	Galactic & Extra-Galactic Astronomy
2014-2013	Introduction to Astronomy
2011-2010	Lab. I; Formation of planetary systems
2010-2000	Lab. I
2009-2008	Lab. I
2008-2006	Teaching Dynamics; Financial Mathematics; Stochastic Ordinary Differential equations at Istanbul Technical University
2005-2004	Teaching Cosmology at Bogazici University
2005-2004	Teaching Introduction to Astronomy at Bogazici University
2004-2003	Teaching Introduction to Astrophysics at Bogazici University (undergraduate course)
2003-2003	Teaching Cosmology (undergraduate course) at St. K. Ochridski (Sofia)
2001-2000	Teaching Cosmology (graduate course) at Bogazici University

V. Memberships

- Member of the Italian Physics Society
- Member of the ESA's (European Space Agency) GAIA project
- Member of the International Astronomical Union

VI. Languages

Italian	native speaker
English	fluent in speaking and writing
Romanian	advanced
Portuguese	advanced
Russian	advanced

VII. Knowledge in Software

- Fortran, C, Maple, Matlab, $\text{\LaTeX}$
- Operating systems: Windows, Linux, and Unix.

VIII. Research Interests

- Cosmology: large scale structure in the universe
- Planetology: Origin and evolution of solar and extrasolar planetary systems
- Stellar Systems: Stochastic forces

List of publications (95 Refereed + 36 Proceedings+5 Reviews (invited papers))

Refereed papers:

Astrophysics

Stars: Statistics

- (1) Del Popolo, A., 1996, Stochastic force in gravitational systems, *Astronomy and Astrophysics*, 1996, 305, 999-1004.
- (2) Del Popolo, A., 1996, The fluctuating gravitational field in inhomogeneous and clustered self-gravitating systems, *Astronomy and Astrophysics*, 1996, 311, 715-720.
- (3) Del Popolo, A., Gambera, M., 1999, The statistics of the gravitational field arising from an inhomogeneous system of particles, *Astronomy and Astrophysics*, 342, 34.
- (4) A. Del Popolo, 2003, Numerical tests of dynamical friction, *Astronomy and Astrophysics* 406, 1.

Planetology

- (5) Spedicato, E., Del Popolo, A., 1998, Equilibrium distances of a collinear planetary system, *Aeon*
- (6) Del Popolo, A., Spedicato, E., Gambera, M., 1999, Kuiper belt evolution due to dynamical friction, *Astronomy and Astrophysics* 350, 685
- (7) Spedicato, E., Del Popolo, A., 2000, Dynamical evolution of a collinear planetary system, *Aeon* Y, 6, 14-20

- (8) Del Popolo, A., Gambera M., Ercan, N., 2001, Migration of giant planets in planetesimals discs, 2001, Monthly Notices of The Royal Accademic Society, 325, 1402
- (9) Del Popolo, A., Eksi, Y., 2002, Migration of giant planets in a time-dependent accretion disc, Monthly Notices of The Royal Accademic Society 332, 485
- (10) Del Popolo, A., Yesilyurt, S., Ercan, E. N., Evolution of planetesimal discs and planetary migration, 2003, Monthly Notices of The Royal Accademic Society 339, 556
- (11) Yeşilyurt S., Ercan N., Del Popolo A., Planetary migration in evolving planetesimals discs, 2003, International Journal of Modern Physics D, Vol. 12, No. 8 (2003) 1399-1414
- (12) Del Popolo A., Ercan N., Yeşilyurt S. Orbital migration and the period distribution of exoplanets, 2005, Astronomy and Astrophysics 436, 363.
- (13) Bass R., Del Popolo A., Dynamical derivation of Bode's Law, 2005, International Journal of Modern Physics D, 2005, Vol. 14, No.1, 153-169
- (14) Costa, V.; Pirronello, V.; Belvedere, G.; Del Popolo, A.; Molteni, D.; Lanzafame, G., 2010, How initial and boundary conditions affect protoplanetary migration in a turbulent sub-Keplerian accretion disc: 2D non-viscous SPH simulations, MNRAS 401, 2388

Cosmology

- (15) Colafrancesco, S., Antonuccio V., Del Popolo, A., 1995, On the dynamical origin of bias in clusters of galaxies, The Astrophysical Journal, 455, 32-36.
- (16) Del Popolo, A., Gambera, M., 1996, Peak mass and dynamical friction, Astronomy and Astrophysics, 308, 373-375.

- (17) Del Popolo, A., Gambera, M., 1997, Substructure effects on the collapse of density perturbations, *Astronomy and Astrophysics*, 321, 691.
- (18) Del Popolo, A., Gambera, M., Antonuccio-Delogu V., 1998, The collapse of a spherical density perturbation in presence of dynamical friction, *Astronomical and Astrophysical Transaction*, Vol. 16, issue 2, pp. 127-131.
- (19) Del Popolo, A., Gambera, M., 1998, Tidal torques and the clusters of galaxies evolution, *Astronomy and Astrophysics* 337, 96
- (20) Del Popolo, A., Gambera, M., 1999, The effect of non-radial motions on the X-ray temperature distribution function and the two-point correlation function of clusters, *Astronomy and Astrophysics* 344, 17.
- (21) Del Popolo, A., Takahashi, Y., Kiuchi, H., Gambera, M., 1999, Non-local bias and the problem of large-scale power in the SCDM model, *Astronomy and Astrophysics*, 348, 667
- (22) Del Popolo, A., Gambera, M., Spedicato, E., Recami, E., 2000, Density profiles of dark matter halos in an improved secondary infall model, *Astronomy and Astrophysics*, 353, 427.
- (23) Del Popolo, A., Gambera, M., 2000, Non radial motions and the shapes and the abundance of clusters of galaxies, *Astronomy and Astrophysics* 357, 809-815
- (24) Del Popolo, A., 2001, The effects of shear and rotation anisotropy upon the process of gravitational instability, 2001, *Baltic Astronomy*, Vol. 10, n. 4, 629
- (25) Del Popolo, A., 2001, Profiles of dark-matter haloes at high redshift, *Monthly Notices of The Royal Accademic Society* 325, 119
- (26) Del Popolo, A., E. N. Ercan, Z. Q. Xia, 2001, Ellipsoidal collapse and previrialization, *The Astronomical Journal* 122, 487

- (27) Del Popolo, A., 2001, The pair-wise velocity dispersion of galaxies: effects of non radial motions, 2001, Monthly Notices of The Royal Accademic Society 326, 667.
- (28) Del Popolo, A., Gambera, M., 2002, High velocity clumps and cluster of galaxies evolution, 2001, Baltic Astronomy, Vol. 11, no. 1.
- (29) Del Popolo, A., Gambera, M, E. N. Ercan, Dynamical evolution of clusters of galaxies: the effect of high-velocity substructure clumps, 2002, International Journal of Modern Physics A, Vol. 17, pp. 187 - 204
- (30) Del Popolo, A., 2002, On the evolution of aspherical perturbations in the universe, 2002, Astronomy and Astrophys 387, 759
- (31) Del Popolo, A., 2002, A theoretical study of the mass temperature relation for clusters of galaxies, Monthly Notices of The Royal Accademic Society 336, 81
- (32) Del Popolo, A., 2002, The mass and temperature functions in a moving barrier model, 2002, Monthly Notices of The Royal Accademic Society 337, 529
- (33) Del Popolo A., Improvements in the M-T relation and mass function and the measured Ω_m through clusters evolution, 2003, The Astrophysical Journal 599, 723-737
- (34) Del Popolo A., Measuring Ω_m using clusters evolution, 2003, A&A 408, 43-49
- (35) Del Popolo, N. Ercan, Constraints to cosmological parameters through clusters evolution, 2004, IAU colloquium 195
- (36) Del Popolo A., N. Ercan and I. S. Yeşilyurt, Cosmological constraints from clustering properties of galaxy clusters, 2005, Astronomy and Astrophysics, 432, 771

- (37) Del Popolo A., N. Ercan, N. Hiotelis, Gravitational collapse and non-self-similarity in the L-T relation, 2005, International Journal of Modern Physics D 14, 849
- (38) Del Popolo A., Hiotelis N., Penarrubia J., A Theoretical Study of the Luminosity Temperature Relation for Clusters of Galaxies, 2005, The Astrophysical Journal 628, 76
- (39) Hiotelis N., Del Popolo A., On the reliability of merger-trees and the mass growth histories of dark matter halos, 2005, Astrophysics and Space Sciences 301: 167-177
- (40) Del Popolo A., An improved model for the multiplicity function, 2005, International Journal of Modern Physics D 14, 1779
- (41) Del Popolo A., Ercan N., 2005, Constraints on Cosmological Parameters by the X-Ray Luminosity and Temperature Functions of Galaxy Clusters, Baltic Astronomy, 14, 571
- (42) Del Popolo A., A new model for the multiplicity function, 2005, Baltic Astronomy, 14, 577
- (43) Del Popolo A., On the Average Comoving Number Density of Halos, 2006, The Astrophysical Journal 637, 12
- (44) Del Popolo A., The excursion set approach, and a model for the multiplicity function, 2006, Astronomy and Astrophysics, 448, 439-446.
- (45) Del Popolo A., 2006, Evolution of the cosmological mass function in a moving barrier model, The Astronomical Journal, 131, 2367
- (46) Del Popolo A., 2006, Some improvements to the spherical collapse model, Astronomy and Astrophysics, 454, 17
- (47) Del Popolo A., 2006, Non self-similarity in cosmological scaling laws, International Journal of Modern Physics D 15, 805

- (48) Del Popolo, A., 2006, Improvements to the Spherical Collapse Model, International Journal of Modern Physics D 15, 1067
- (49) Del Popolo, A., 2007, Dark matter, density perturbations and structure formation, Astronomy Reports 51, n. 3, 169-196
- (50) Del Popolo A., 2007, The cosmological mass function , Astronomy Reports, Vol. 51, N. 9, 709-734
- (51) Del Popolo A., 2007, On the nature of gravitational forces, International Journal of Modern Physics D 16, N. 8, 1349-1368
- (52) A. Del Popolo, 2009, The Cusp/Core problem and the Secondary Infall Model, ApJ 698, 2093
- (53) A. Del Popolo & P. Kroupa, 2009, Density profiles of dark matter haloes on galactic and cluster scales, A&A 502, 733-747 (2009)
- (54) Cardone F., Del Popolo A., Kroupa P., 2009, Angular momentum transfer and the size - mass relation in early - type galaxies, 400, 766-774
- (55) Del Popolo, Costa V., Lanzafame G., Improvements in the X-ray luminosity function and constraints on the cosmological parameters from X-ray luminous clusters, 2010A&A 514, 80
- (56) Del Popolo A., ON THE UNIVERSALITY OF BARYONS AND DARK MATTER DENSITY PROFILES, 2010, IJMPD Vol. 19, No. 5 (2010) 587606
- (57) Del Popolo, A., On the universality of density profiles, 2010 MNRAS 408, 1808
- (58) Cardone, V. F., Leubner, M. P., Del Popolo, A., Spherical galaxy models as equilibrium configurations in non-extensive statistics, 2011, MNRAS 414, 2265

- (59) Cardone, V. F., Del Popolo, A., Tortora, C., Napolitano, N. R., Secondary infall model and dark matter scaling relations in intermediate redshift early - type galaxies, 2011, MNRAS 416, 1822
- Del Popolo, A., Non-power law behavior of the radial profile of phase-space density of halos, 2011, JCAP 07, 014
- (60) Del Popolo, A., Density profile slopes of dwarf galaxies and their environment, 2012, MNRAS 419, 971
- (61) Del Popolo, A., On the non universality of surface density of galaxies, 2012, AASP 2, 53
- (62) Astashenok, Artyom V., Del Popolo, Antonino, Cosmological measure with volume averaging and the vacuum energy problem, 2012, CQGra (Classical and Quantum Gravity,) 29, 5014
- (63) Del Popolo, A.; Cardone, V. F., Statistical properties of the dark matter haloes of dwarf galaxies and correlations with the environment, 2012, MNRAS 423, 1060
- (64) Del Popolo, A., On the density-profile slope of clusters of galaxies, 2012, MNRAS 424, 38
- (65) Cardone V. F., Del Popolo, A., Newtonian acceleration scales in spiral galaxies, 2012 MNRAS 427, 3176
- (66) Del Popolo, A., Cardone, V. F., Belvedere, G., Surface density of dark matter haloes on galactic and cluster scales, 2013, MNRAS 429, 1080
- (67) Del Popolo, A., Pace, F., Lima, J. A. S., Spherical collapse model with shear and angular momentum in dark energy cosmologies, 2013, MNRAS 430, 628
- (68) Del Popolo, A., Pace, F., Lima, J. A. S., 2013, IJMPD Volume 22, Issue 8, id. 1350038

- (69) Del Popolo, A.; Pace, F.; Maydanyuk, S. P.; Lima, J. A. S.; Jesus, J. F., Shear and rotation in Chaplygin cosmology, 2013, PhRvD 87, 043527
- (70) Hiotelis, Nicos, Del Popolo, Antonino, Anomalous diffusion models for the formation of dark matter haloes, 2013, MNRAS 436, 163
- (71) Del Popolo, A., Non-baryonic dark matter in cosmology, 2013, AIPC, 1548, 2
- (72) Babyk, Iu.; Del Popolo, A., Correlations in Relaxed Clusters of Galaxies, 2014, BaltA, 23, 9
- (73) Del Popolo, A., On the Mass Dependence of the Inner Slopes of Dark Matter Density Profiles, 2014, BaltA 23, 55
- (74) Del Popolo, A., Angular Momentum in Dwarf Galaxies, 2014, BaltA 23, 111
- (75) Del Popolo, A., Improvements in the spherical collapse model and dark energy cosmologies, 2014BaltA 23, 189
- (76) Del Popolo, Antonino Nonbaryonic Dark Matter in Cosmology, 2014, IJMPD, Volume 23, Issue 3, id. 1430005
- (77) Del Popolo, A.; Hiotelis, N., Cusps and cores in the presence of galactic bulges, 2014, JCAP 01, 047
- (78) Del Popolo, A.; Lima, J. A. S.; Fabris, Jlio C.; Rodrigues, Davi C. A unified solution to the small scale problems of the Λ CDM model, 2014, JCAP 04, 021
- (79) Del Popolo, A., The flat density profiles of massive, and relaxed galaxy clusters, 2014, JCAP 07, 019
- (80) Babyk, Yu. V.; Del Popolo, A.; Vavilova, I. B., Chandra X-ray galaxy clusters at $z \lesssim 1.4$: Constraints on the inner slope of the density profiles, 2014, ARep 58, 587

- (81) Pace, Francesco; Batista, Ronaldo C.; Del Popolo, Antonino, Effects of shear and rotation on the spherical collapse model for clustering dark energy, 2014, MNRAS 445, 648
- (82) Del Popolo, A.; Le Delliou, M., A unified solution to the small scale problems of the Λ CDM model II: introducing parent-satellite interaction, 2014, JCAP 12, 051
- (83) Saburova, A.; Del Popolo, A., On the surface density of dark matter haloes, 2014, MNRAS 445, 3512
- (84) Del Popolo, A., Baryon physics and the missing satellites problem, 2015, BaltA 24, 277
- (85) Del Popolo, A., On the pseudo phase-space density of dark matter haloes and the universality of density profiles, 2015, BaltA 24, 263
- (86) Fedorova, E.; Sliusar, V. M.; Zhdanov, V. I.; Alexandrov, A. N.; Del Popolo, A.; Surdej, J. Gravitational microlensing as a probe for dark matter clumps, 2016, MNRAS 457, 4147
- (87) Del Popolo, A.; Pace, F., The Cusp/Core problem: supernovae feedback versus the baryonic clumps and dynamical friction model, 2016Ap&SS 361, 162
- (88) Silva, J. M.; Lima, J. A. S.; de Souza, R. E.; Del Popolo, A.; Le Delliou, Morgan; Lee, Xi-Guo, Chandrasekhar's dynamical friction and non-extensive statistics, 2016, JCAP 05, 021

Physics

- (89) Del Popolo, A., Gambera, M., Recami, E., Tonin-Zanchin, V., 1999, The strong coupling constant, Heavy Ion Physics (Acta Phys Hung NS-H), Vol. 10 (1999) No. 4, 345-349.

Mathematics

- (90) Spedicato, E., Bodon, E., Del Popolo A., Xia Z., 2000, ABS algorithms for linear systems and optimization: a review and bibliography, Ricerca Operativa, Vol. 29, n. 89, page 39

- (91) Bodon, E., Del Popolo, A., Luksan, L., Spedicato, E., 2000, Computational experiments with ABS algorithms for overdetermined linear systems, BIT Numerical Mathematics
- (92) Bodon, E., Del Popolo, A., Luksan, L., Spedicato, E., 2001, Computational experiments with ABS algorithms for KKT systems, Optimization Methods and Software 16, Numbers (1-4), 85-99 2001
- (93) E. Spedicato, E. Bodon, A. Del Popolo, N. Mahdavi-Amiri, 2002, ABS Methods and ABSPACK for Linear Systems and Optimization, a Review, 2003, 4OR 1: 51-66
- (94) Spedicato E., Bonomi M. and Del Popolo A., ABS Solution of equations of second kind and application to the primal-dual interior point method for linear programming, 2008, IJOR (Iranian Journal of Operation Research), Volume 1, Number 1, 5
- (95) Hai-Shan Han, Antonino Del Popolo, Zun-Quan Xia An, 2009, An ABS algorithm for a class of systems of stochastic linear equations, JAMC, 2009, Vol 31, N. 1-2, 533 – 542

Conference papers:

Astrophysics

Stars: Statistics

- (1) Del Popolo, A., 2001, On the statistics of the gravitational field, Proceedings of the international conference "Statistical Challenges in Modern Astronomy III", July 18-21, 2001, The Pennsylvania State University, State College, Pennsylvania, Usa, edited by Eric D. Feigelson and G. Jogesh Babu. Berlin: Springer-Verlag, 2003., p.411

Planetology

- (2) A. Del Popolo, 2003, Planetary migration in protoplanetary discs, ASP conference series, ASPC 294, 327
- (3) A. Del Popolo, 2006, Dynamical evolution of Kuiper Belt, pdf file at: <http://www.ct.astro.it/tno2006/program.html>.
- (4) V. Costa, V. Pirronello, G. Belvedere, A. Del Popolo, G.Lanzafame, 2010, Interactions between an asteroid type body and a protoplanet within a protoplanetary accretion disc: 3D SPH simulations, Proceedings of the 53th congress of the Italian Astronomical Society, Pisa 4-8 Maggio 2009. Published in Memorie della Società Astronomica Italiana - Supplementi"
- (5) V. Costa, V. Pirronello, G. Belvedere, A. Del Popolo, G.Lanzafame, 2010, Mutual interactions of two planetary objects in a protoplanetary accretion disc: 2D SPH simulations, Proceedings of the 53th congress of the Italian Astronomical Society, Pisa 4-8 Maggio 2009. Published in Memorie della Società Astronomica Italiana - Supplementi"
- (6) V. Costa, V. Pirronello, G. Belvedere, A. Del Popolo, D. Molteni, G.Lanzafame, 2010, Evolution of the orbit of an asteroid type body within a protoplanetary accretion disc: 3D SPH simulations, Proceedings of the 53th congress of the Italian Astronomical Society, Pisa 4-8

Maggio 2009. Published in Memorie della Società Astronomica Italiana - Supplementi”

- (7) V. Costa, V. Pirronello, G. Belvedere, A. Del Popolo, D. Molteni, G.Lanzafame, 2D SPH simulations of a single planet migration in a protoplanetary disc, Proceedings of the 53th congress of the Italian Astronomical Society, Pisa 4-8 Maggio 2009. Published in Memorie della Società Astronomica Italiana - Supplementi”

Cosmology

- (8) Antonuccio, V., Colafrancesco, S., Del Popolo, A., 1994, Substructure, dynamical friction and the origin of gravitational bias in hierarchical clustered cosmological models, Memorie italiane Astr. Soc., 1995, vol. 66-1, 195
- (9) Del Popolo, A., Gambera, M., Antonuccio-Delogu V., 1996, The influence of dynamical friction on the collapse of a spherical density perturbation, Memorie italiane Astr. Soc., 1996, 67, n^o 4, 959
- (10) Del Popolo, A., Gambera, M., X-ray temperature distribution function of clusters in presence of large non-radial motions, D.N. Vulcanov, I.I. Cotaescu (editors) - "New theoretical results in gravity and general relativity", Proceedings of the VII-the conference on Theoretical physics - General Relativity and Gravitation, Bistrita, Romania, 1997, Mirton Publ. House, Timisoara, 1998 - ISBN : 973-578-535-8, page 69.
- (11) Del Popolo, A., Gambera, M., 1998, The effect of non-radial motions on the CDM model predictions, Proceedings of " *VIII Conference on Theoretical Physics: General Relativity and Gravitation*" BISTRITZA - June 15-18 1998 - Romania, Mirton Publ. House, Timisoara, 1999, p. 88

- (12) Del Popolo, A., Gambera, M., Tidal torques dynamical friction and the structure of clusters of galaxies, 1999, IAUS, 183, 245. Proceedings of the International IAU Symposium 183 "*Cosmological Parameters and Evolution of the Universe*, (Kyoto, Japan - August 18-22 1997), Edited by Katsuhiko Sato. Publisher: Dordrecht, Boston: Kluwer Academic, 1999.
- (13) Del Popolo, A., Gambera, M., 1999, Dark matter halos in a secondary infall model Proceedings of "*IX Conference on Theoretical Physics: General Relativity and Gravitation*" Iasi-Timisoara - 24-27 May 1999- Romania, p. 11.
- (14) Del Popolo, A., Gambera, M., 1999, Non-radial motions and the large scale structure of the Universe, Proceedings of the International Conference IGRAP99: Clustering at high redshift, Marseille 29/06-02/07 1999. A.S.P. Conf. Ser., volume 200, page 148, edited by A. Mazure, O. Le Fevre, and V. Le Brun.
- (15) Del Popolo A., The mass temperature relation for clusters of galaxies, 2003xseh.proc..307, (XEUS - studying the evolution of the hot universe, held at MPE Garching, March 11-13, 2002. Edited by G. Hasinger, Th. Boller, and A.N. Parmer, MPE Report 281, 2003, p. 307).
- (16) Del popolo, A., 2004, Constraints to cosmological parameters through cluster evolution Authors, Outskirts of Galaxy Clusters: Intense Life in the Suburbs. Edited by Antonaldo Diaferio, IAU Colloquium n. 195, p.319-321
- (17) A. Del Popolo, 2009, Constraints on the Cosmological parameters by means of the clusters mass function, FRASCATI WORKSHOP 2009, Vulcano (Italy), May 25 - 30; Mem. S.A.It. Vol. 81, 157
- (18) A. Del Popolo, 2009, Recent Advances in Cosmology, Potsdam, Germany, September 21 - September 25 (<http://www.astro.uni-bonn.de/agcosmo/>)

- (19) Costa, V.; Pirronello, V.; Belvedere, G.; Del Popolo, A.; Lanzafame, G. Interactions between an asteroid type body and a protoplanet within a protoplanetary accretion disc: 3D SPH simulations, 2010, MSAIS 14, 165
- (20) Costa, V.; Pirronello, V.; Belvedere, G.; Del Popolo, A.; Lanzafame, G. Mutual interactions of two planetary objects in a protoplanetary accretion disc: 2D SPH simulations, 2010, MSAIS 14, 161
- (21) Costa, V.; Pirronello, V.; Belvedere, G.; Del Popolo, A.; Molteni, D.; Lanzafame, G. Evolution of the orbit of an asteroid type body within a protoplanetary accretion disc: 3D SPH simulations, 2010, MmSAI 14, 157
- (22) A. Del Popolo, 2010, FRASCATI WORKSHOP 2010 (Frontier Objects in Astrophysics and Particle Physics), The CUSP/CORE Problem: a Model for Structures on Galactic and Extragalactic Scales, Vulcano (Italy) 24-29 May 2010; to be printed in Mem. S.A.It.
- (23) A. Del Popolo, 2010, The Λ CDM Cusp/Core problem, 10-th International Gamow Summer School - Conference, 23-28 August, 2010, Odessa, Ukraine
- (24) Del Popolo, A., Dark Matter Awareness Week, 1-8 December 2010, Dark Matter in Galaxies.
- (25) Del Popolo, A., 2011, Young Scientists' Conference on Astronomy and Space Physics, May 2-7, 2011, Kiev: On the non universality of surface density of galaxies, Advances in Astronomy and Space Physics, Vol. 2, p.53-55
- (26) Del Popolo, A., 2011, in "Frontier Objects of Astrophysics and Particle Physics", F. Giovannelli & G. Mannocchi (eds.), Societa' Italiana di Fisica, Editrice Compositori, Bologna, Italy, Vol. 103, pp. 181-186.

- (27) Del Popolo, A., 2013, Young Scientists' Conference on Astronomy and Space Physics, April 22-27, 2013, Kiev: Small scale problems of the Λ CDM model
- Del Popolo, A. 2015, Multifrequency Behaviour of High Energy Cosmic Sources - XI, Palermo, May 25-30, Palermo, The small scale problems of the *Lambda*CDM model
- (28) Del Popolo, A. 2016, Young Scientists' Conference on Astronomy and Space Physics, April 25-30, 2016, A unified solution to the small scale problems of the Λ CDM model

Physics

- (29) Del Popolo, A., Gambera, M., Tonin-Zanchin, V., Recami E., 1999, About some Regge-like relations for (stable) black holes, Proceedings of the International Conference " *NON-EUCLIDEAN GEOMETRY IN MODERN PHYSICS* " UZHGOROD - AUGUST 13-16, 1997 - Ukraine, Edited by L.Jenkovszky, Kiev, 1997, pp. 173-182
- (30) Del Popolo, A., Gambera, M., Recami, E., Tonin-Zanchin, V., 1999, The strong coupling constant, Proceedings of NON-EUCLIDEAN GEOMETRY IN MODERN PHYSICS 2-nd Biannual International (BGL) Conference Nyiregyha'za (Hungary), July 7 - 10, 1999.

Mathematics

- (31) Spedicato, E., Bodon, E., Del Popolo A., Rudzinska, K., Korman-ski, H., 1999, Modellizzazione ed ottimizzazione di emissioni e consumi in motori di veicoli stradali (Models for the optimization of emission and consumption in road vehicles engines), in Proceedings of the Conference "Second Progetto Finalizzato Trasporti, Rome, November 1999 (CD edition)
- (32) Spedicato E., Xia Z., Bodon E., Del Popolo A., 2000, ABS algorithms for linear equations and ABSPACK, Proceedings of the conference related to the project: Progetto CoFin97: "Numerical Analysis:

Methods and Mathematical Software”, Ferrara, Italy, 19-21 January 2000. Ann. Univ. Ferrara -Sez. VII Sc. Mat., 14, 1-21

- (33) Bodon E., Del Popolo A., Luksan L., Spedicato S., 2000, Numerical performance of ABS codes for nonlinear systems of equations, Report DMSIA 22/2000, University of Bergamo
- (34) Bodon E., Del Popolo A., Luksan L., Spedicato S., 2000, Computational experiments with ABS algorithms for determined and underdetermined linear systems (report DMSIA 23/2000).
- (35) Hai-Shan Han, Zun-Quan Xia, A. Del Popolo, 2001, An ABS Algorithm for a Class of Systems of Stochastic Linear Equations, III international conference on ABS methods; CAS (Chinese Accademy of Sciences), Beijing, 13-14/05/2001
- (36) Xing Li, Ying Liu, A. Del Popolo, 2001, C++ Codes of Implicit Lu Algorithms for Absdll01, III international conference on ABS methods; CAS (Chinese Accademy of Sciences), Beijing, 13-14/05/2001

Review (invited) Papers:

- (1) A. Del Popolo, 2003, Dark matter, and structure formation, Research Signpost 37/661 (2), Fort P.O., Trivandrum-695 023, Kerala, India; Recent Res. Devel. Astronomy & Astrophysics, 1 (2003); 187-217
- (2) V. Damgov, D. Gotchev, E. Spedicato, A. Del Popolo, 2003, N-body Gravitational Interactions: A General View and Some Heuristic Problems”, invited paper. Development series’, Research Signpost 37/661 (2), Fort P.O., Trivandrum-695 023, Kerala, India; Recent Res. Devel. astronomy & Astrophysics, 1 (2003); 155-186
- (3) The cosmological mass function theory, 2006, Transworld Research Network 37/661 (2), Fort P.O., Trivandrum-695 023, Kerala, India, Recent Res. Devel. Physics, 6(2005): ISBN: 81-7895-171-1
- (4) Del Popolo, A., Non-baryonic dark matter in cosmology, 2013, AIPC, 1548, 2
- (5) Del Popolo, A., Le Delliou, M., On the small scale problems of the Λ CDM model: a short review, 2016 Galaxies

Invited talks:

- ”Clusters of galaxies formation and evolution”, I summer school of U.E.F.S. (Universidade Estadual de Feira de Santana), 25/01-05/02 1999 Feira de Santana, Bahia, Brasil
- ”Non-radial motions and the large scale structure in the universe”, 30/05/2000, Bogazici University, Istanbul, Turkey;
- ”Large scale structure in the universe”, 23/11/2000, Feza Gürsey Institute, Istanbul, Turkey;
- ”Extrasolar Planets”, 23/12/2000, Bogazici University, Istanbul, Turkey

- "Extrasolar Planets", 18/01/2001, Feza Gürsey Institute, Istanbul, Turkey
- Modelli di migrazione planetaria e GAIA, 8/02/2001, Incontro su missioni ESA, Agenzia Spaziale Italiana (ASI) (Planetary migration models and the GAIA mission, 8/02/2001, Meeting on ESA missions)
- Computational experiments with ABS algorithms for determined, underdetermined, overdetermined and KKT linear systems, III international conference on ABS algorithms, CAS (Chinese Accademy of Science), Beijing, 13-14/May/2001
- "Extrasolar planetary systems: observational evidence and theoretical problems", Workshop on: Classical and new scenarios on evolution of solar system, Bergamo, October 20 and 21 , 2001
- "Formation of structure in the Universe", 01/11/2001, Fatih University, Istanbul
- "Theoretical improvements in the mass function and in the M-T relation and constraints on cosmological parameter", Torino, September 2004
- "Theoretical improvements in the M-T and L-T relations in mass function and effects on the value of Ω ", Innsbruck, 12/06/2006
- A. Del Popolo, 2009, Constraints on the Cosmological parameters by means of the clusters mass function, FRASCATI WORKSHOP 2009 2009, Vulcano (Italy), May 25 - 30
- (17) A. Del Popolo, 2010, FRASCATI WORKSHOP 2010 (Frontier Objects in Astrophysics and Particle Physics), The CUSP/CORE Problem: a Model for Structures on Galactic and Extragalactic Scales, Vulcano (Italy) 24-29 May 2010; to be printed in Mem. S.A.It.
- Del Popolo, A., Dark Matter Awareness Week, 1-8 December 2010, Dark Matter in Galaxies.

- Del Popolo, A., 2011, Young Scientists' Conference on Astronomy and Space Physics, May 2-7, 2011, Kiev: On the non universality of surface density of galaxies
- Del Popolo, A., Iag-Usp seminars, 26/09/2013, The Cusp/Core problem (in Portuguese)
- Del Popolo, A., IX MEXICAN SCHOOL OF THE GRAVITATION AND MATHEMATICAL PHYSICS DIVISION, COSMOLOGY FOR THE XXI CENTURY: INFLATION, DARK MATTER, AND DARK ENERGY, Puerto Vallarta, Jalisco, Mexico, December 3rd - 7th, 2012: Non-Baryonic Dark Matter in Cosmology
- Del Popolo, A., 2013, Young Scientists' Conference on Astronomy and Space Physics, April 22-27, 2013, Kiev: Small scale problems of the Λ CDM model
- Frascati Workshop 2013, Vulcano, Italy, 27 May-1 June, Dark Matter and Dark Energy: State of the art
- Del Popolo, A. 2014, Challenges in Modern Cosmology: Dark Matter and Dark Energy, May 05-09, 2014, Natal, Brazil (organizers: Joshua Frieman, J. A. de Freitas Pacheco, Joseph Silk): The small scale problems of the *Lambda*CDM model
- Del Popolo, A. 2015, Multifrequency Behaviour of High Energy Cosmic Sources - XI, Palermo, May 25-30, Palermo, The small scale problems of the *Lambda*CDM model
- Del Popolo, A. 2016, Young Scientists' Conference on Astronomy and Space Physics, April 25-30, 2016, A unified solution to the small scale problems of the Λ CDM model

References (List of Reference People)

1) Prof. Edmund Bertschinger, Department of Physics MIT,
77 Massachusetts Avenue
Cambridge, MA 02139 USA
+1 (617) 253-5083 (office)
+1 (617) 253-9798 (fax)
E-mail: edbert@mit.edu

2) Prof. Jos Ademir Sales de Lima
Universidade de So Paulo-USP/IAG
Instituto de Astronomia, Geofisica e Ciencias Atmosfricas
Rua do Mato
Cidade Universitaria
So Paulo, SP 05508-900
Brazil

Phone: +55 11 3091 2730
Fax: +55 11 3091 2801
Email: limajas@astro.iag.usp.br Organization website: <http://www.iag.usp.br/>

3)Prof. Antonaldo Diaferio,
Universita' degli Studi di Torino
Dipartimento di Fisica Generale "Amedeo Avogadro", Via P. Giuria, 1
I-10125 Torino ITALY
tel: +39-011-6707458
fax: +39-011-658444
e-mail: diaferio@ph.unito.it

4) Prof. M.Lattanzi, Osservatorio Astronomico di Torino,
Strada Osservatorio 20

I-10025 Pino Torinese, Italy
E-mail: lattanzi@to.astro.it
Tel. +39-011-8101923
Fax +39-011-8101900

5) Prof. Erasmo Recami, Bergamo University, Faculty of Engineering,
Viale Marconi 5,
24044 Dalmine (BG); Italy.
E-mail: Erasmo.Recami@MI.INFN.IT
Tel.: +390352052313

6) Prof. Emilio Spedicato, Bergamo University, Faculty of Mathematics,
Via dei Caniana 2, Bergamo, Italy.
E-mail: emilio@unibg.it
Tel: +390352052514

7) Prof. Nihal Ercan, Bogazici University,
Faculty of Physics, Istanbul, Turkey.
E-mail: ercan@boun.edu.tr
Tel.: +902123581540 / 1604