

Part A. PERSONAL INFORMATION

CV date 16/03/2020

First and Family name	María Inmaculada Domínguez Aguilera		
Researcher numbers	Researcher ID	P-2324-2017	
	Orcid code	https://orcid.org/0000-0002-3827-4731	

A.1. Current position

Name of University/Institution	Universidad de Granada		
Department	Física Teórica y del Cosmos		
Address and Country	Spain		
Phone number	+34958249062	E-mail	inma@ugr.es
Current position	Catedrática de Universidad	From	27/12/2011
Espec. cód. UNESCO	210110 210112 210303 210111		
Palabras clave	Stellar structure and evolution, supernovae, nucleosynthesis, cosmology, nuclear astrophysics, astroparticles, computational astrophysics		

A.2. Education

PhD	University	Year
Ciencias Físicas	Barcelona	1991

A.3. JCR articles, h Index, thesis supervised...

- 59 referred articles included in the JCR, 51 in Q1.
- h-index: 29 (source ADS)
- h100: 11 (ADS)
- Citations: +2900 (ADS)
- 4 "sexenios de investigación" (last 2014)
- 3 Ph.D thesis supervised (2009, 2016, 2017)

Part B. CV SUMMARY (max. 3500 characters, including spaces)

The research lines in which I am considered an expert at the international level, include thermonuclear supernovae, in which I started working for my PhD at CEAB-CSIC (Blanes), and stellar evolution, that was my research topic during my postdoc stay at the Istituto di Astrofisica Spaziale-CNR (Frascati). In both cases developing hydrostatic and hydrodynamics codes.

All my research has been done in the framework of international collaborations, fostered by several long stays (more than 24) at foreign institutions, mainly at the INAF-Osservatorio Astronomico d'Abruzzo, the Univ. of Texas and the Univ. of Chicago. The results of my research have been published in more than 50 articles in the highest impact journals and more than 100 articles in other international journals or conference proceedings. I have presented above 100 contributions in workshops, at least 40 of them as invited talks.

My research has been funded, since my PhD, by competitive national and international projects, and I have been PI or co-PI of the National projects (AYA) since 2006. I am frequently part of SOCs for international congress and schools, frequent evaluator for national and international research agencies, telescope allocation time (CAT), computing time (PRACE) and referee for journals.

Among my main contributions in research, I would remark some of my pioneer works, like the inclusion of rotation in the evolution of intermediate mass star, forming massive CO WDs, the study of Pop. III intermediate mass stars, identifying their contribution to the early chemical enrichment of the Universe, analysis of the AGB phase as an astroparticle laboratory, and the series of studies about the impact of progenitor properties (initial mass, metallicity, rotation, cooling...) on observable properties of Type Ia supernovae, which is key for their

cosmological applications. All of them are very active research lines in stellar evolution, astroparticles and dark matter candidates, thermonuclear supernovae, and cosmology (SN calibration relation and dark energy constraints).

Since I started working at UGR in 1993 I have developed an extensive teaching activity at graduate and postgraduate levels. I have also hold postgraduate courses at foreign institutions: the Instituto Superior Tecnico (Lisbon), Universidad de Chile (Santiago), Universita di Roma Tor-Vergata and National Astronomical Observatories (Beijing).

I consider outreach activities as a main task, and so I participate in all initiatives I can, as the “Science Week” or “Science and Society”. I have organized (2014-2017) the Course “El Universo: desde el Big-Bang a la Vida” for the “Aula Permanente de Formación Abierta” at UGR. In 2010 I was co-founder of the “Azarquiel School of Astronomy: a Bridge between East and West” that has been hold at Granada, Beirut, Istanbul and Portopalo. I have also collaborated with the UNESCO-PEACE initiative for Palestine. Recently, I have published my first outreach book “Supernovas. El brillante final de una estrella” within the collection “Un paseo por el Cosmos” edited by RBA, this book has already been translated and published in France and Italy.

At the management level, I would like to remark that I have served as Director for Internationalization at the UGR-International School for Postgraduate Studies (2011-2015); I was elected member of the IAU Comission 35 in 2012; as Councilor for the European Astronomical Society (2019) and recently as Manager of the Astronomy and Astrophysics plan at the Spanish Research Agency. I have been president for the external evaluation committee of masters at UAB and currently at UB, I have participated as member in several expert panels and a prospective study for RIA.

Part C. RELEVANT MERITS

C.1. Publications (2016-2019)

- The Initial Mass-Final Luminosity Relation of Type II Supernova Progenitors: Hints of New Physics? Straniero et al. (2/5), 2019, The Astrophysical Journal, Volume 881, Issue 2, article id. 158, 21 pp
- Surface and Core Detonations in Rotating White Dwarfs, García-Senz et al. (3/3), **2018**, The Astrophysical Journal Letters, Volume 862, Issue 1, article id. 27
- **PISCO**: The PMAS/PPak Integral-field Supernova Hosts Compilation Surface and Core Detonations in Rotating White Dwarfs, Galbany et al. (8/19), **2018**, The Astrophysical Journal Letters, Volume 855, Issue 2, article id. 107
- Type Ia Supernovae Keep Memory of their Progenitor Metallicity, Piersanti et al. (4/7), **2017**, The Astrophysical Journal Letters, Volume 836, Issue 1, article id. L9, pp.
- The puzzle of the CNO isotope ratios in asymptotic giant branch carbon stars, Abia et al. (4/3), **2017**, Astronomy & Astrophysics, Volume 599, id.A39, pp.
- Type Ia Supernovae: Can Coriolis Force Break the Symmetry of the Gravitational Confined Detonation Explosion Mechanism? García-Senz et al. (4/3), **2016**, The Astrophysical Journal, 819, 2, id. 132
- Supernova 2014J at M82 - II. Direct analysis of a middle-class Type Ia supernova, Valley et al. (22/5), **2016**, Monthly Notices of the Royal Astronomical Society, Volume 460, Issue 2, p.1614-1624
- Gamma-ray emission from SN2014J near maximum optical light, Isern et al. (22/16), **2016**, Astronomy & Astrophysics, 588, A67

- SN 2014J at M82 - I. A middle-class Type Ia supernova by all spectroscopic metrics, Galbany et al. (25/8), **2016**, Monthly Notices of the Royal Astronomical Society, Volume 457, Issue 1, p.525-537
- On the Dependence of Type Ia SNe Luminosities on the Metallicity of Their Host Galaxies, Moreno-Raya et al. (7/7), **2016**, The Astrophysical Journal Letters, Volume 818, Issue 1, article id. L19

Publications with more than 100 citations (ADS in order of citations):

- Evolution, Nucleosynthesis, and Yields of Low-Mass Asymptotic Giant Branch Stars at Different Metallicities, Cristallo et al. (6/5), 2009, The Astrophysical Journal, Volume 696, Issue 1, pp. 797-820
- Evolution, Nucleosynthesis, and Yields of Low-mass Asymptotic Giant Branch Stars at Different Metallicities. II. The FRUITY Database, Cristallo et al. (9/5), 2011, The Astrophysical Journal Supplement, Volume 197, Issue 2, article id. 17
- The Cooling of CO White Dwarfs: Influence of the Internal Chemical Distribution, Salaris et al. (6/2), 1997, The Astrophysical Journal, Volume 486, Issue 1, pp. 413-419.
- s-Process Nucleosynthesis in Carbon Stars, Abia et al. (9/2), 2002, The Astrophysical Journal, Volume 579, Issue 2, pp. 817-831
- The ⁸⁵Kr s-Process Branching and the Mass of Carbon Stars, Abia et al. (6/4), 2001, The Astrophysical Journal, Volume 559, Issue 2, pp. 1117-1134
- Intermediate-Mass Stars: Updated Models, Domínguez et al. (4/1), 1999, The Astrophysical Journal, Volume 524, Issue 1, pp. 226-241
- Constraints on the Progenitors of Type Ia Supernovae and Implications for the Cosmological Equation of State, Domínguez et al. (3/1), 2001, The Astrophysical Journal, Volume 557, Issue 1, pp. 279-291
- Revisiting the Bound on Axion-Photon Coupling from Globular Clusters, Ayala, Domínguez et al (2/5), 2014, Physical Review Letters, Volume 113, Issue 19, id.191302
- The Chemical Composition of White Dwarfs as a Test of Convective Efficiency during Core Helium Burning, Straniero et al. (2/4), 2003, The Astrophysical Journal, Volume 583, Issue 2, article id. 878
- Low-Mass AGB Stellar Models for $0.003 \leq Z \leq 0.02$: Basic Formulae for Nucleosynthesis Calculations as a Test of Convective Efficiency during Core Helium Burning, Straniero et al. (2/4), 2003, Publications of the Astronomical Society of Australia, Volume 20, Issue 4, article id. 389
- Thermal X-Ray Emission from Shocked Ejecta in Type Ia Supernova Remnants: Prospects for Explosion Mechanism Identification, Badenes et al. (4/4), 2003, The Astrophysical Journal, Volume 593, Issue 1, pp. 358-369.

C.2. Research projects and grants

- AYA-2018--095317-B: Las estrellas de baja masa e intermedia como motores de la evolución química, progenitores de supernovas y laboratorio de astropartículas, 2019-2021, equipo de investigación, 36.300 €

- AYA-2015-63588-P: Las estrellas de baja masa e intermedia como motores de la evolución química de galaxias, progenitores de supernovas termonucleares y laboratorio de astropartículas, 2016-2018, **co-P.I.**, 61.589 €
- AYA-2011-22460: Theoretical and Observational Analysis of the Late Phases of the Stellar Evolution: Missing Physical Processes in AGB Stars and Thermonuclear Supernovae, 2012-2015, Comisión Interministerial de Ciencia y Tecnología. **P.I.**, 116.000 €
- 544134-TEMPUS-1-2013-1-BE-TEMPUS: UZDOC- Enhancing quality of doctoral education at Higher Education Institutions in Uzbekistan, 2013-2016, European Commission, (P.I. UNICA), 683.632,63 €
- CSO2009-05461-E: First Azarquiel School in Astronomy, 2010, Comisión Interministerial de Ciencia y Tecnología, CSO2009-05461-E, **P.I.**, 25.000 €
- ARENA, Antarctic Research, a European Network for Astrophysics. 2006-2009, Unión Europea (FP VI), P.I.: Nicolas Epchtein, Participación: Colaborador (P.I. at UGR, Carlos Abia), 1.600.000 € (27.000 € UGR)

Institutional responsibilities & evaluation committees (last 5 years)

- "Gestora" del área de Astronomía y Astrofísica, Spanish Research Agency (2020-)
- Councilor of the European Astronomical Society (2019-)
- Director for Internationalization at the International Postgraduate School of the UGR (2011-2015)
- Frequent evaluator of National (ANEP), Catalan (AGAUR) and international (CNRS-Lebanese, FWO-Belgium, PRACE-EC research & computing projects)
- Member of the CAT Stars and Galaxies panel (2014-2016)
- Member of the expert committee for AYA national project funding
- Elected member of the Organization Committee of the IAU Commission 35, Stellar Constitution (2012-2015)
- President of the External Commission for master accreditation at the Science Faculty of UAB (2016-2017).
- President of the External Commission for master accreditation at the Science Faculty of UB (2019-2020).
- UGR representative at the Task Force for Doctoral Studies and Research del Grupo Coimbra de Universidades (2011-2015)
- Member of the expert panel for the Ramón y Cajal, 2014 call, Physics and Space Science
- UGR representative for the Mobility programmes of Asociación Universitaria Iberoamericana de Posgrado (2011-2015)
- Referee for A&A, ApJ, ApJL, EPJ
- Member of the expert panel "Stellar and sub-stellar physics: a prospective study", for the RIA-Red Infraestructuras de Astronomía (published in 2020)
- Co-founder and member of the Board of the Azarquiel School of Astronomy: a Bridge between East and West, held in Granada (2010), Beirut (2011), Istanbul (2012) and Portopalo (2017).

International Organization Committees (2014-2018)

- Nuclei in the Cosmos, Assergi, Italy, June **2018** (SOC)
- The AGB-Supernovae *Mass Transition*, Rome, March **2017** (SOC)
- The Amazing life of stars: from the Main Sequence to the Gravitational wave emission Cefalu (Sicily), September **2017** (SOC)
- 4th Azarquiel School of Astronomy, Portopalo (Sicily), June **2017** (Board & SOC)
- Supernova through the ages: Understanding the past to prepare for the future, Easter Island, Chile, August **2016** (SOC)
- 11th Workshop on Nucleosynthesis in AGB stars, Bonn, Germany, July **2014** (SOC)