



CURRICULUM VITAE (CVA)

Part A. PERSONAL INFORMATION		CV date	02/12/2021
First name	MIGUEL		
Family name	SÁNCHEZ-CONDE		
Gender (*)	Male	Birth date (dd/mm/yyyy)	12/02/1980
Social Security, Passport, ID number		XDB379428	79261672S
e-mail	miguel.sanchezconde@uam.es	Web: https://projects.ift.uam-csic.es/damasco/	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-3849-9164	

A.1. Current position

Position	'Atracción de Talento Comunidad de Madrid' Senior Researcher		
Initial date	01-03-2017		
Institution	Universidad Autónoma de Madrid (UAM)		
Department/Center	Theoretical Physics Dpt.	Institute for Theoretical Physics (IFT)	
Country	Spain	Phone	+34912999867
Key words	gamma rays, dark matter searches, particle astrophysics, dark matter halos, cosmological simulations, large scale structure		

A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
2009 - 2011	Postdoctoral researcher / Instituto de Astrofísica de Canarias / Spain
2011 - 2014	Postdoctoral researcher / Stanford & SLAC National Accelerator Lab / USA
2014 - 2017	Postdoctoral researcher / Stockholm University / Sweden

A.3. Education

PhD	Universidad de Granada	2009
M.Sc.	Universidad de Granada	2007
B.Sc.	Universidad de La Laguna	2004

Part B. CV SUMMARY

My main research activities focus on shedding light on the **fundamental nature of the dark matter (DM) with gamma rays**. In the theory side, I proposed and explored new astrophysical scenarios and targets for current and future gamma-ray telescopes, new search strategies, and made predictions of the gamma-ray flux for the most popular DM candidates. **N-body cosmological simulations** or semi-analytical models of DM halo formation/evolution are also tools that I use in my research. In the experimental side, I analyzed gamma-ray data to search for hints of DM and to set constraints on the nature of the DM particle. I performed this work as a member of the **MAGIC Collaboration** (2007-2010) and of the **Fermi-LAT Collaboration** (2011-now). I also belong to the **Cherenkov Telescope Array (CTA) Consortium** since 2011. I play a major role in these collaborations, currently being the **Fermi-LAT scientific coordinator** of the DM working group (since September 2020; and also between 2014-16); and being the past **CTA scientific coordinator** of the DM working group (2018-2020).



I possess **107 refereed works** (more than 12,600 citations in the ADS), myself having **led or co-led 22**. I have carried out numerous (>30) research visits worldwide and have given **more than 90 talks** and/or colloquia at international conferences and world-class institutions (**40 invited**), such as Stanford, Columbia, CalTech, UCLA, DESY/Berlin, Amsterdam, Stockholm...

In the management side, in addition to having been DM coordinator for both Fermi and CTA, I have been the **coordinator** of the “Gamma rays and cosmic rays working group” of the **MultiDark** Spanish National Project and Network (2010-2020). I have been the **P.I. of three grants** (for a total of 430,900€) and currently **lead my own research group** at the IFT UAM-CSIC. I have **organized several workshops** and have been in charge of the seminars in several institutions. I was part of the **SOC/LOC** of multiple national and international conferences (e.g., TeVPA18). I have **refereed tens of papers** for peer-review journals such as PRD, PRL, JCAP, and play the role of **internal referee** for both Fermi and CTA often.

As for my academic record, I got my B.Sc. degree from Universidad de La Laguna in 2004, and my PhD in October 2009 at the IAA-CSIC and Universidad de Granada. I started my postdoctoral experience at the Instituto de Astrofísica de Canarias (IAC). In August 2011, I moved as a postdoc to KIPAC/SLAC, Stanford University. In September 2014, I got the prestigious “Wenner-Gren postdoc fellowship” at the Oskar Klein Centre, Stockholm University. In March 2017, I joined the IFT UAM-CSIC as a “Comunidad de Madrid Atracción de Talento” senior researcher and founded my own research group, currently composed by 3 PhD students and several postdocs. Group details: <https://projects.ift.uam-csic.es/damasco/>.

Part C. RELEVANT MERITS

C.1. Publications (including books)

A total of **108 refereed publications** (including 22 led or co-led; 22 as a member of the Fermi-LAT Collaboration; 5 as a member of the CTA Consortium; 31 as a member of the MAGIC Collaboration; 5 refereed contributions to proceedings). I **highlight 10 publications** below:

[1] *Unidentified gamma-ray sources as targets for indirect dark matter detection with the Fermi LAT*, J. Coronado-Blazquez, M.A. Sánchez-Conde, et al., 2019, JCAP, 07, 020

[2] *Characterization of subhalo structural properties and implications for dark matter annihilation signals*, A. Moliné, M. A. Sánchez-Conde, et al., 2017, MNRAS, 466, 497

[3] *Searching for Dark Matter Annihilation in Recently Discovered Milky Way Satellites with Fermi-LAT*, A. Albert, B. Anderson; K. Bechtol, A. Drlica-Wagner, M. Meyer, M.A. Sánchez-Conde, et al., 2017, ApJ, 834, 110

[4] *Search for Spectral Irregularities due to Photon-Axionlike-Particle Oscillations with the Fermi Large Area Telescope*, M. Ajello et al. (the Fermi-LAT collab., M.A. Sánchez-Conde corresponding author), 2016, PRL, 116, 161101

[5] *Sensitivity projections for dark matter searches with the Fermi Large Area Telescope*, E. Charles, M.A. Sánchez-Conde et al., 2016, Physics Reports, 636, 1

[6] *The nature of the Diffuse Gamma-Ray Background*, M. Fornasa and M.A. Sánchez-Conde, 2015, Physics Reports, 598, 1

[7] *The origin of the extragalactic gamma-ray background and implications for dark matter annihilation*, M. Ajello, D. Gasparri, M. A. Sánchez-Conde, et al., 2015, ApJL, 800, 27

[8] *Limits on dark matter annihilation signals from the Fermi-LAT 4-year measurement of the isotropic gamma-ray background*, M. Ackermann et al. (the Fermi LAT collab., M.A. Sánchez-Conde corresponding author). 2015, JCAP, 09, 008

[9] *The flattening of the concentration-mass relation towards low halo masses and its implications for the annihilation signal boost*, M. A. Sánchez-Conde and F. Prada, 2014, MNRAS, 442, 2271

[10] *Dark matter searches with Cherenkov telescopes: nearby dwarf galaxies or local galaxy clusters?* M. A. Sánchez-Conde, M. Cannoni, F. Zandanel, et al., 2011, JCAP, 12, 011



C.3. Research projects and grants (10 last years)

Participation in **11 funded projects** in the past 10 years. Listed only those with me as P.I.:

1. 2020-5A/TIC-19725. “Unveiling the nature of the dark matter in gamma rays” (2021-2022). Agency: Comunidad de Madrid regional Government. Amount: 30.000€.
2. PGC2018-095161-B-I00, “Partículas, Astropartículas y Materia Oscura en el Universo” (2019-2021). Agency: Ministerio de Economía y Competitividad. Amount: 96.800€.
3. 2016-T1/TIC-1542. “Unveiling the nature of the dark matter with the Fermi satellite” (2017-2021). Agency: Comunidad de Madrid regional Government. Amount: 304.100€.

C.4. R&D management

- 2020 – now Scientific coordinator of the ‘Dark Matter and New Physics’ working group, Fermi Large Area Telescope (Fermi-LAT) Collaboration
- 2018 – 2020 Scientific coordinator of the ‘Dark Matter and Exotic Physics’ working group, Cherenkov Telescope Array (CTA) Consortium
- 2017 – 2020 Scientific coordinator of the ‘Gamma rays and cosmic rays dark matter detection’ working group, ‘MultiDark Consolider’ Spanish research network.
- 2015 – 2017 Convener of the ‘Dark Matter group’, Oskar Klein Centre, Stockholm Univ.
- 2014 – 2016 Scientific coordinator of the ‘Dark Matter and New Physics’ working group, Fermi Large Area Telescope (Fermi-LAT) Collaboration
- 2010 – 2017 Scientific coordinator of the ‘Gamma rays dark matter detection’ working group, ‘MultiDark Consolider’ Spanish Project of Excellence.
- 2017 – now Representative of non-permanent researchers at the Faculty Board (‘Junta de Facultad’), Science Faculty, UAM, Spain
- 2017 – now Representative of non-permanent researchers at the University Senate (‘Claustro de Universidad’), UAM, Spain
- 2015 – 2017 Convener of the ‘Dark Matter group’, Oskar Klein Centre, Stockholm Univ.
- 2015 – 2017 Organizer of the ‘Fermi lunch seminars’, KIPAC/SLAC, Stanford, USA
- 2012 – 2014 Member of the ‘Oskar Klein Centre colloquia committee’, Stockholm Univ.

C.5. Participation in scientific committees

- 2018 – now Guest Editor, ‘Galaxies’ MDPI peer-reviewed JCR journal
- 2017 – now Steering Committee member, ‘International School on Astroparticle Physics’ (ISAPP)
- 2015 – now Scientific Evaluator, Statal Research Agency (AEI), Spain
- 2015 Reviewer, *Physical Communications* (PHYCOM, Elsevier)
- 2014 – now Reviewer, *Journal of Cosmology and Astroparticle Physics* (JCAP)
- 2014 – now Reviewer, *Physical Review Letters* (PRL)
- 2013 – now Reviewer, *Physical Review D* (PRD)
- 2011 – now Internal reviewer in both Fermi-LAT and CTA collaborations
- 2012 Scientific Evaluator, NASA Fermi Guest Investigator Program, USA.
- 2020 Member of the PhD dissertation committee of C. Eckner, U Nova Gorica.
- 2020 Member of the PhD dissertation committee of M. Bernardos, UAM, Spain
- 2019 Member of the PhD dissertation committee of M. Méndez-Isla, U Cape Town.
- 2011 Member of the PhD dissertation committee of A. Domínguez, U Sevilla.

C.7. Organization of R&D activities

- 2021 LOC member, ‘Xmas IFT workshop’, Madrid, Spain
- 2021 LOC member, ‘16th IBS-MultiDark-IFT online workshop’, Madrid, Spain
- 2021 LOC member, ‘TAUP21’ international conference, Valencia, Spain



2021	Main organizer and chair, 'ISAPP school: Gamma rays to shed light on dark matter', 50 participants, Madrid, Spain
2020	LOC member, "5 th IBS-IFT-MultiDark workshop", online
2018	Main organizer and chair, 'Halo substructure and dark matter searches' workshop, 40 participants, IFT UAM-CSIC, Spain
2018	Inviter convener of the dark matter session, TeVPA18 international conference, 250 participants, Berlin, Germany
2016	Inviter convener of the dark matter session, TeVPA16 international conference, 250 participants, CERN, Switzerland
2013	LOC member, 'School: dark matter tools and Fermi tools', Valencia, Spain

C.8. Teaching

2021 – now	'Técnicas Experimentales 1' Physics degree course – UAM, Spain
2019 – now	Coordinator of the 'Prácticas Externas' Physics degree course – UAM, Spain
2018 – now	'Técnicas Experimentales 3' Physics degree course – UAM, Spain
2014 – now	'Astroparticles' master course – 'Master on Theoretical Physics', UAM, Spain
2015 – 2017	"Advance Problem Solving", Physics degree, Stockholm Univ. Sweden
2019	Invited lecturer: "MAGIC dark matter school", Universidad de Barcelona, Spain
2019	Invited lecturer: "1 st Thai-CTA workshop", Chiang Mai, Thailand
2014	Invited lecturer: "HAP workshop on data analysis for indirect dark matter searches", E.Shrodinger Zentrum, Berlin, Germany
2014	Invited lecturer: "42 nd SLAC Summer Institute", SLAC National Lab, USA
2013	Coach at the "Workshop on dark matter tools and Fermi science tools", IFIC/CSIC, Valencia, Spain

C.9. Supervision

Currently leading my research group, composed by several MSc and PhD students, as well as several postdoctoral researchers: <https://projects.ift.uam-csic.es/damasco/>.

2019 – ongoing	F. Scarcella's Graduate Student Advisor, UAM, Spain
2018 – ongoing	J. Pérez-Romero's Graduate Student Advisor, UAM, Spain
2018 – ongoing	A. Aguirre-Santaella's Graduate Student Advisor, UAM, Spain
2017 – 2021	J. Coronado-Blázquez's Graduate Student Advisor, UAM, Spain
2020 – 2021	J. Berdoy, M. Rocamora and L. Ondaro's MSc Students Advisor, UAM
2017 – 2018	A. Aguirre-Santaella's MSc Student Advisor, UAM, Spain
2012 – 2013	Mentor of C. Eichert and T. Carmichael, SULI program, Stanford, USA

C.10. Honors and awards

- Member of the International Astronomical Union (2020-).
- Member of the NASA Fermi-LAT Collaboration (2011-). PI of the UAM-Madrid group.
- Member of the Cherenkov Telescope Array (CTA) Consortium (2011-). PI of the UAM-Madrid group.
- Former member of the MAGIC Collaboration (2007-2010).
- Recipient of the "2013 Wennergren postdoc fellowships" – Stockholm U. (2014-2016).
- 3-years postdoc at KIPAC/SLAC, Stanford (2011-2014).

C.11. Selected outreach activities

- "Gamma rays to unveil the nature of dark matter", Chiang Mai Univ., Thailand, Feb 2019.
- "Rayos gamma: una mirada al universo más violento (y oscuro)", Residencia de estudiantes CSIC, Science Week, Madrid, November 2017.
- "The gamma-ray sky", Forskarfredag, Stockholm University, Sweden, September 2016.
- Science referee at the "Green Kids – Microsoft" science fair, CA, USA, May 2014.