Jordi Miralda Escudé

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Place and date of birth: Terrassa (Barcelona), Spain, November 22 1964.
ORCID number: 0000-0002-2316-8370

Education

Princeton University
Princeton, New Jersey
Fall 1987–Summer 1991
PhD in Astrophysics, October 1991.

Autonomous University of Barcelona
Bellaterra, Barcelona, Spain.
1982–1987
Physics degree, 1987.

Present position

ICREA Professor of Astrophysics, October 2005 to present.
Host Institutions:
Institut de Ciències de l'Espai, CSIC (2005-2009),
Institut de Ciències del Cosmos, Universitat de Barcelona (2009-present)
(Scientific Director at the ICCUB, 2019-2024)

Previous Employment

Associate Professor (tenured 2003), The Ohio State University, Dept. of Astronomy	2000-05
Assistant Professor, University of Pennsylvania, Department of Physics and Astronomy	1996-99
Long-Term Membership in the Institute for Advanced Study, Princeton, NJ	1993–96
SERC Postdoctoral Fellowship in Cambridge, UK	1991–93

Fellowships and Honors

Alfred P. Sloan Research Fellow	1997-2001
Hubble Fellowship, 1993 (declined)	
Princeton University Harold W. Dodds Fellowship	1990–91
Princeton University Prize Fellowship	1987–88

Teaching Experience

ICREA Professor October 2005 to present

Spring 2006 and Spring 2007: "Introducció a la Cosmologia", UAB
An introductory course for physics undergraduates.
Fall 2007 and Fall 2008: "Cosmologia i Astrofísica", UAB
Astrophysics classes for the UAB Master in Physics.
Spring 2010: "Lectures on Gravitational Lensing", University of Barcelona
Series of lectures for graduate students on gravitational lensing.
Fall 2010, Fall 2011: "Introduction to Cosmology", Universitat de València
Invited lectures for graduate students on cosmology.
Spring 2012: "Problems in Theoretical Astrophysics ", Penn State University
Invited graduate lectures.
Fall 2012, 2013: "Problems in Theoretical Astrophysics ", University of Barcelona
August 2014: "Physics of the Intergalactic Medium, Summer School in Cosmology ".
Invited graduate lectures for International School, ICTP, Trieste, Italy.
Fall 2014 and 2015: "Stellar Structure and Star Formation ".
Master course at the Institute of Cosmos Sciences, University of Barcelona.
Fall of every year, 2016 to 2025, except 2018: "Advanced Cosmology".
Required course in the ICCUB Master on Astrophysics, Particle Physics and Cosmology.

Associate Professor at the Ohio State University Winter 2000 to Spring 2005

Spring 2000: Astro-172, "Stellar, Galactic, and Extragalactic Astronomy":
An introductory course for science majors.
Autumn 2000 and Autumn 2002: Astro-822, "Electromagnetic Radiation":
A course for astronomy graduate students on electromagnetic processes in astrophysics.
Winter 2001 and Autumn 2001: Astro-162,
"Introduction to Stellar, Galactic, and Extragalactic Astronomy":
An introductory course for non-science majors.
Spring 2002 and Spring 2004: Astro-870, Stellar Systems
A graduate course on galactic dynamics.
Winter 2003 and Spring 2005: Astro-682, Introduction to Cosmology.
An introductory course to cosmology for physics and astronomy majors.
Autumn 2003 and Autumn 2004: Astro-161, Introduction to the Solar System.
An introductory course to basic astronomy and the Solar System for non-science majors.
Winter 2004: Freshman Seminar, Introduction to the Science of Climate Change.
A short course on climate change created by myself for freshman undergraduates.
Autumn 2000, Winter 2001, Autumn 2001, Winter 2002, Winter 2003, Winter 2004, Winter 2005:
Order-of-magnitude Astrophysics .
A special course that teaches hands-on problem solving in theoretical astrophysics.

Assistant Professor in the University of Pennsylvania Fall 1996 to Fall 1999

Spring 1997: Astro-533, "Galactic Structure and Dynamics" (graduate course)
Fall 1997: Astro-1, "Survey of the Universe" (introductory astrophysics for non-science majors)
Spring 1998: Astro-12, " Introduction to Astronomy and Astrophysics II"
(astrophysics for Physics majors)
Fall 1998, Spring 1999, and Fall 1999: Astro-7, " The Big Bang and Beyond"
(freshman seminar on astrophysics and cosmology for non-science majors)

Successful Grant Proposals

Ohio State Seed Grant on " The Ionization and Gravitational Evolution of the Intergalactic Medium", January 2000. Jordi Miralda-Escudé (PI).

NSF Extragalactic Astronomy Program: "Multi-Tracer Studies of High Redshift Structure: Theoretical Development". Jordi Miralda-Escudé (PI), D. H. Weinberg.
Award Period: 7-1-2001 to 6-30 2004. Amount: $ 160000.

NASA Astrophysics Theory Program: "Probing the Reionization History of the Universe". N. Gnedin (PI) (University of Colorado). J. Miralda-Escudé (co-I)
Award Period: 7-1-2002 to 6-30-2005. Amount: $ 232156, to University of Colorado.

Hubble Space Telescope Cycle 12: "The Upper End of the Supermassive Black Hole Mass Function: Pushing the 10 Billion Solar Mass Limit", Laura Ferrarese (PI), Jordi Miralda-Escudé .
Award Period: 7-1-2003 to 6-30-2004. Amount: $ 41000 to Ohio State University

Beyond Einstein NASA Program: "How do Black Holes Grow?". D. Weinberg (PI), J. Miralda-Escudé (co-I)
Award Period: 7-1-2005 to 6-30-2008. Amount: $275000

Plan Nacional de Astronomía y Astrofísica: "El Dark Energy Survey", AYA2006-06341. E. Gaztañaga (PI), F. Castander, P. Fosalba, J. Miralda-Escudé.
Award Period: 10-1-2006 to 9-30-2009.

Plan Nacional de Astronomía y Astrofísica: "Caracterización de Estrellas de Baja Masa, Enanas Marrones y Exoplanetas", AYA2006-15623-C02-01. I. Ribas (PI), J. Miralda-Escudé.
Award period: 10-1-2006 to 9-30-2009.

Marie Curie International Reintegration Grant: "Evolution from the First Stars to Massive Black Holes", J. Miralda-Escudé (PI).
Award period: 11-1-2007 to 10-31-2009.

Juan de la Cierva fellowship awarded to postdoctoral Pau Amaro-Seoane, directed by J. Miralda-Escudé. Award period: January 2008 to December 2010.

Beatriu de Pinós Fellowship awarded to postdoctoral Carmelita Carbone, directed by J. Miralda-Escudé.
Award period: February 2008 to January 2010.

Consolider Program: "Physics of the Accelerating Universe", CSD2007-00060. PI: E. Fernández.
Award period: 2007 to 2012.

Plan Nacional de Astronomía y Astrofísica: "Fluctuaciones Primordiales y Física de Cuásares con 100000 Espectros de Cuásares", AYA2009-09745. J. Miralda-Escudé (PI).
Amount: 70000 Euros. Award Period: 10-1-2009 to 12-31-2012. A student FPI fellowship is included.

Programa Salvador de Madariaga para estancias en centros extranjeros: "La distribución espacial de cuásares y sistemas de absorción en la estructura a gran escala del universo", PR2011-0431. J. Miralda-Escudé. Amount: 15000 Euros. Award Period: 11-1-2012 to 11-5-2012.

Plan Nacional de Astronomía y Astrofísica: "Estructura a Gran Escala, Cuásares y las Primeras Estrellas con los Espectros de Absorción de Cuásares de BOSS", AYA2012-33938. J. Miralda-Escudé (PI).

Amount: 65000 Euros. Award Period: 1-1-2013 to 31-12-2015. A student FPI fellowship is included.

Ajuts AGAUR: " Astronomia i Astrofísica", 2014SGR86 PI: J.M. Paredes Poy.
Amount: 78000 Euros. Award Period: 1-1-2014 to 31-12-2016.

Ministerio de Economía y Competitividad, María de Maeztu Program. "Institut de Ciències del Cosmos", MDM-2014-0369. PI: J.M. Paredes Poy.
Amount: 2000000 Euros. J. Miralda-Escudé is 1 of 7 Priority Line PIs. Award Period: 1-7-2015 to 30-6-2019.

Redes de Excelencia: "Red de Cosmología a través del estudio del fondo de microondas y la estructura a gran escala del Universo", AYA2015-71855-REDT, PI: Patricio Vielva (IFCA).
Amount: 30000 Euros. Award Period: 1-12-2015 to 30-11-2017.

Plan Nacional de Astronomía y Astrofísica: "The Intergalactic Medium: A Tool for the Study of the Composition and Origin of the Universe and the First Stars", AYA2015-71091-P J. Miralda-Escudé (PI).
Amount: 86200 Euros. Award Period: 1-1-2016 to 31-12-2018.

Programa Salvador de Madariaga de estancias de movilidad en centros extranjeros: "Escrutando la materia oscura: lentes gravitatorias a muy alta magnificación y estructura cósmica a pequeña escala ", PRX18-044. J. Miralda-Escudé.
Amount: 17256 Euros. Award Period: 1-11-2018 to 30-4-2019.

Ministerio de Economía y Competitividad, FPA Program. "Física de Axiones, métodos de detección astrofísicos, y desarrollo de componentes instrumentales de BabyIAXO", PID2019-108122GB-C32, coordinated project with University of Zaragoza and Universidad Politécnica de Cartagena. PI: J. Miralda-Escudé and A. Notari, in ICCUB node of a Coordinated project.
PI of the Coordinated Project: I. Irastorza, University of Zaragoza.
Amount: 89177 Euros, at the ICCUB.
Award Period: 1-6-2020 to 30-5-2023.

Ministerio de Ciencia e Innovación, María de Maeztu Program. "Institut de Ciències del Cosmos", CEX-2019-000918-M. PI: J. Miralda-Escudé, Scientific Director.
Amount: 2000000 Euros for ICCUB. Award Period: 1-1-2020 to 31-12-2024.

Ajuts AGAUR 2021: "Astrophysics and Galaxy Formation", 2021SGR00679. PI: M. Ribó Gomis.
Amount: 40000 Euros. Award Period: 1-1-2022 to 30-6-2025.

Ministerio de Ciencia e Innovación, FPA Program. "Participación en las Actividades de Preparación y Construcción del Helioscopio de Axiones BabyIAXO de la Colaboración IAXO", PID2022-137268NB-C52, coordinated project with University of Zaragoza, Universidad Politécnica de Cartagena, ITA in Zaragoza, and IFIC in Valencia.
PI: J. Miralda-Escudé and A. Notari (ICCUB node). PI of the Coordinated Project: I. Irastorza, University of Zaragoza.
Amount: 110000 Euros at the ICCUB. Award Period: 1-7-2023 to 30-6-2026.

PUBLICATIONS

1. J. Miralda-Escudé and M. Schwarzschild 1989. "On The Orbit Structure of the Logarithmic Potential," *Ap. J.* **339**, 752-762.
2. J. Miralda-Escudé and J. P. Ostriker 1990. "What Produces the Ionizing Background at Large Redshift?," *Ap. J.* **350**, 1-22.
3. J. Miralda-Escudé, P. Haensel, and B. Paczyński 1990. "Thermal Structure of Accreting Neutron Stars and Strange Stars," *Ap. J.* **362**, 572-583.
4. J. Miralda-Escudé 1991. "Gravitational Lensing by Clusters of Galaxies: Constraining the Mass Distribution," *Ap. J.* **370**, 1-14.
5. J. Miralda-Escudé 1991. "The Magnification of Stars Crossing a Caustic. I: Lenses with Smooth Potentials," *Ap. J.* **379**, 94-98.
6. J. Miralda-Escudé 1991. "The Correlation Function of Galaxy Ellipticities Produced by Gravitational Lensing," *Ap. J.* **380**, 1-8.
7. J. L. Zdunik, P. Haensel, B. Paczyński, and J. Miralda-Escudé 1992. "Thermal Structure of Neutron Stars with Very Low Accretion Rates," *Ap. J.* **384**, 129-135.
8. J. Miralda-Escudé 1992. " Using Arcs in Clusters of Galaxies as Probes to Cluster Potentials and the Faint Blue Galaxies," *Ap. J. Let.* **390**, L65-L67.
9. J. Miralda-Escudé and J. P. Ostriker 1992. "Helium I Absorption by Lyman Alpha Clouds and Low Redshift Lyman Alpha Clouds," *Ap. J.* **392**, 15-22.
10. J. Miralda-Escudé and J. Lehár 1992. "Optical Rings: A Large Number of Gravitational Lenses?" *Mon. Not. Royal Astr. Soc.* **259**, 31p-34p.
11. J. Miralda-Escudé and M. J. Rees 1993. "Tests for the Minihalo Model of the Lyman Alpha Forest," *Mon. Not. Royal Astr. Soc.* **260**, 617-624.
12. J. Miralda-Escudé 1993. "Statistics of Highly Magnified Gravitational Images in Clusters of Galaxies. I: Implications for the Clusters," *Ap. J.* **403**, 497-508.
13. J. Miralda-Escudé 1993. "Statistics of Highly Magnified Gravitational Images in Clusters of Galaxies. II: Implications for the Sources," *Ap. J.* **403**, 509-516.
14. G. F. Lewis, J. Miralda-Escudé, D. C. Richardson and J. Wambsganss 1993. "Microlensing Light Curves: A New and Efficient Numerical Method," *Mon. Not. Royal Astr. Soc.* **261**, 647-656.
15. J. Miralda-Escudé 1993. "On the HeII Gunn-Peterson Effect and the HeII Forest," *Mon. Not. Royal Astr. Soc.* **262**, 273-276.
16. H. J. Mo, J. Miralda-Escudé and M. J. Rees 1993. "The Distribution of Minihalos in CDM Cosmogony," *Mon. Not. Royal Astr. Soc.* **264**, 705-711.
17. J. Miralda-Escudé and B. Fort 1993. "Gravitational Lensing Pairs in Clusters of Galaxies: A New Probe to the High Redshift Universe", *Ap. J. Let.* , **417**, L5-L7.
18. J. Miralda-Escudé and M. J. Rees 1994. "Reionization and Thermal Evolution of the Intergalactic Medium", *Mon. Not. Royal Astr. Soc.* , **266**, 343-352.
19. A. Gould, J. Miralda-Escudé and J. N. Bahcall 1994. "Microlensing Events: Thin Disk, Thick Disk, or Halo?" *Ap. J. Let.* , **423**, L105-L108.
20. H. J. Mo and J. Miralda-Escudé 1994. " Damped Lyman Alpha Systems and Galaxy Formation" *Ap. J. Let.*, **430**, L25-L28.
21. R. Y. Cen, J. Miralda-Escudé, J. P. Ostriker and M. Rauch 1994. " Gravitational Collapse of Small-Scale Structure as the Origin of the Lyman Alpha Forest" *Ap. J. Let.*, **437**, L9-12.

22. J. Miralda-Escudé 1995. " Gravitational Lensing by Clusters of Galaxies and the Central cD Galaxy: Measuring the Mass Profile" *Ap. J.*, **438**, 514-526.

23. J. Miralda-Escudé and A. Babul 1995. " Gravitational Lensing in Clusters of Galaxies: New Clues Regarding the Dynamics of the Intracluster Gas" *Ap. J.*, **449**, 18-27.

24. A. Reisenegger and J. Miralda-Escudé 1995. " The Gunn-Peterson Effect from Underdense Regions in a Photoionized Intergalactic Medium" *Ap. J.*, **449**, 476-487.

25. E. Waxman and J. Miralda-Escudé 1995. " The Distribution of Mass and Gas in the Center of Clusters of Galaxies Implied by X-ray and Lensing Observations" *Ap. J.*, **451**, 451-467.

26. J. P. Kneib, Y. Mellier, R. Pelló, J. Miralda-Escudé, J.-F. Le Borgne, H. Böhringer and J.-P. Picat 1995. " Dynamics of A2218 from Optical and Near-IR Imagery of Arc(let)s and ROSAT/HRI X-ray Map" *A&A.*, **303**, 27-40.

27. A. Reisenegger, J. Miralda-Escudé, and E. Waxman 1996. " Cooling Flows and Metallicity Gradients in Clusters of Galaxies" *Ap. J. Let.*, **457**, L11-L14.

28. L. Hernquist, N. Katz, D. H. Weinberg, and J. Miralda-Escudé 1996. " The Lyman-Alpha Forest in the Cold Dark Matter Model" *Ap. J. Let.*, **457**, L51-L56.

29. N. Katz, D. H. Weinberg, L. Hernquist, and J. Miralda-Escudé 1996. " Damped Lyman-Alpha and Lyman-Limit Absorbers in the Cold Dark Matter Model " *Ap. J. Let.*, **457**, L57-L60.

30. J. Miralda-Escudé and E. Waxman 1996. " Signatures of the Origin of High-Energy Cosmic Rays in Cosmological Gamma-Ray Bursts" *Ap. J. Let.*, **462**, L59-62.

31. H. J. Mo and J. Miralda-Escudé 1996. " Gaseous Galactic Halos and Qausi-Stellar Object Absorption-Line Systems" *Ap. J.*, **469**, 589-604.

32. J. Miralda-Escudé 1996. " Microlensing Events from Measurements of the Deflection" *Ap. J. Let.*, **470**, L113-116.

33. J. Miralda-Escudé, R. Cen, J. P. Ostriker, and M. Rauch 1996. " The Lyαl Forest from Gravitational Collapse in the Cold Dark Matter + Λ Model" *Ap. J.*, **471**, 582-616.

34. E. Waxman and J. Miralda-Escudé 1996. " Images of Bursting Sources of High-Energy Cosmic Rays: Effects of Magnetic Fields" *Ap. J. Let.*, **472**, L89-92

35. J. Miralda-Escudé and M. J. Rees 1997. " High-Redshift Supernovae and the Metal-Poor Halo Stars: Signatures of the First Generation of Galaxies" *Ap. J. Let.*, **478**, L57-61

36. A. Gould and J. Miralda-Escudé 1997. " Signatures of Accretion Disks in Quasar Microlensing" *Ap. J. Let.*, **483**, L13-16

37. M. Rauch, J. Miralda-Escudé, W. L. W. Sargent, T. A. Barlow, D. H. Weinberg, L. Hernquist, N. Katz, R. Cen, and J. P. Ostriker 1997. " The Opacity of the Lyα Forest and Implications for Ω_b and the Ionizing Background" *Ap. J.* **489**, 7-20

38. D. H. Weinberg, J. Miralda-Escudé, L. Hernquist, and N. Katz 1997. "A Lower Bound on the Cosmic Baryon Density" *Ap. J.* **490**, 564-570

39. R. Y. Cen, S. Phelps, J. Miralda-Escudé, J. P. Ostriker 1998. " On the Clustering of Lyman Alpha Clouds, High-Redshift Galaxies, and Underlying Mass" *Ap. J.*, **496**, 577-585

40. J. Miralda-Escudé and M. J. Rees 1998. " Searching for the Earliest Galaxies using the Gunn-Peterson Trough and the Lyman Alpha Emission Line" *Ap. J.*, **497**, 21-27.

41. J. Miralda-Escudé 1998. " Reionization of the Intergalactic Medium and the Damping Wing of the Gunn-Peterson Trough" *Ap. J.*, **501**, 15-22.

42. U. Hellsten, N. Gnedin, J. Miralda-Escudé 1998. " The X-ray Forest: A New Prediction of Hierarchical Structure Formation Models" *Ap. J.*, **509**, 56-61.

43. J. Miralda-Escudé 1999. " Small-Angle Scattering of X-rays from Extragalactic Sources by Dust in Intervening Galaxies", *Ap. J.*, **512**, 21-24.

44. V. Nair, J. Miralda-Escudé 1999. " Microlensing in the Galactic Bulge: Effects of the Background Disk", *Ap. J.*, **515**, 206-214.

45. P. McDonald, J. Miralda-Escudé 1999. " Measuring the Cosmological Geometry from the Lyman Alpha Forest along Parallel Lines of Sight", *Ap. J.*, **518**, 24-31.

46. P. McDonald, J. Miralda-Escudé 1999. " Galaxy Formation and the Kinematics of Damped Lyman Alpha Systems", *Ap. J.*, **519**, 486-500.

47. J. Miralda-Escudé 2000. " Soft X-ray Absorption by High-Redshift Intergalactic Helium", *Ap. J. Let.*, **528**, L1-4

48. J. Miralda-Escudé, M. Haehnelt, & M. J. Rees 2000. " Reionization of the Inhomogeneous Universe", *Ap. J.*, **530**, 1-16.

49. A. Cooray, W. Hu, and J. Miralda-Escudé 2000. "Weak Lensing by Large-Scale Structure: a Dark Matter Halo Approach", *Ap. J. Let.*, **535**, L9-12.

50. P. McDonald, J. Miralda-Escudé, M. Rauch, W. L. W. Sargent, T. A. Barlow, R. Cen, and J. P. Ostriker 2000. " The Observed Probability Distribution Function, Power Spectrum, and Correlation Function of the Transmitted Flux in the Lyman Alpha Forest", *Ap. J.*, **543**, 1-23.

51. J. Miralda-Escudé and A. Gould 2000. "A Cluster of Black Holes at the Galactic Center", *Ap. J.*, **545**, 847-853.

52. P. McDonald, J. Miralda-Escudé 2001. " The Lyman-alpha Forest Flux Distribution at $z \sim 5.2$ and the Evolution of the Ionizing Background", *Ap. J. Let.*, **549**, L11-14 (erratum in *Ap. J. Let.*, **595**, L67).

53. P. McDonald, J. Miralda-Escudé, M. Rauch, W. L. W. Sargent, T. A. Barlow, and R. Cen 2001. " A Measurement of the Temperature-Density Relation in the Intergalactic Medium Using a New Lyα Absorption Line Fitting Method", *Ap. J.*, **562**, 52-75.

54. J. Chanamé, A. Gould, J. Miralda-Escudé 2001. "Microlensing by the Cluster of Black Holes around Sgr A*", *Ap. J.*, **563**, 793-799.

55. J. Miralda-Escudé 2002. "A Test of the Collisional Dark Matter Hypothesis from Cluster Lensing", *Ap. J.*, **564**, 60-64.

56. J. Miralda-Escudé 2002. "Orbital Perturbations on Transiting Planets: A possible method to measure Stellar Quadrupoles and to detect Earth-mass Planets", *Ap. J.*, **564**, 1019-1023.

57. Z. Zheng & J. Miralda-Escudé 2002. "Self-Shielding Effects on the Column Density Distribution of Damped Lyman Alpha Systems", *Ap. J. Let.* **568**, L71-74.

58. S. M. K. Alam & J. Miralda-Escudé 2002. "Self-Absorption of Ionizing Radiation and Extended Narrow-Line Emission in High-Redshift Quasi-Stellar Objects", *Ap. J.*, **568**, 576.

59. Z. Zheng & J. Miralda-Escudé 2002. "Monte Carlo Simulation of Lyα Scattering and Application to Damped Lyα Systems", *Ap. J.*, **578**, 33.

60. P. McDonald, J. Miralda-Escudé, & R. Cen 2002. "Large-Scale Correlation of Mass and Galaxies with the Lyman Alpha Forest Transmitted Flux", *Ap. J.*, **580**, 42.

61. J. Miralda-Escudé 2003. "The Dark Age of the Universe", *Science*, **300**, 1904.

62. J. Miralda-Escudé 2003. "On the Evolution of the Ionizing Emissivity of Galaxies and Quasars Required by the Hydrogen Reionization", *Ap. J.*, **597**, 66.

63. X. Chen & J. Miralda-Escudé 2004. "The Spin-Kinetic Temperature Coupling and the Heating Rate due to Lyman Alpha Scattering before Reionization: Predictions for 21 cm Emission and Absorption", *Ap. J.*, **602**, 1.

64. C. A. Onken & J. Miralda-Escudé 2004. "History of Hydrogen Reionization in the Cold Dark Matter Model", *Ap. J.*, **610**, 10.

65. M. Schirber, J. Miralda-Escudé, & P. McDonald 2004. "The Transverse Proximity Effect: a Probe to the Environment, Anisotropy, and Megayear Variability of QSOs", *Ap. J.*, **610**, 105.

66. J. Yoo, & J. Miralda-Escudé 2004. "Formation of the Black Holes in the Highest Redshift Quasars", *Ap. J. Let.*, **614**, L25.

67. J. Miralda-Escudé, & J. A. Kollmeier 2005. "Star Captures by Quasar Accretion Disks: A Possible Explanation of the $M - \sigma$ Relation", *Ap. J.*, **619**, 30.

68. J. Miralda-Escudé 2005. "On the Importance of Local Sources of Radiation in Cosmological Absorption Systems", *Ap. J. Let.*, **620**, L91.

69. K. Kohler, N. Gnedin, J. Miralda-Escudé, & P. A. Shaver 2005. "Redshifted 21 cm Emission from the Pre-Reionization Era II. HII Regions around Individual Quasars", *Ap. J.*, **633**, 552.

70. O. Y. Gnedin, A. Gould, J. Miralda-Escudé, A. R. Zentner 2005. " Probing the Shape of the Galactic Halo with Hyper-Velocity Stars", *Ap. J.*, **634**, 344.

71. J. A. Kollmeier, J. Miralda-Escudé, R. Cen, & J. P. Ostriker 2006. " Galactic Wind Effects on the Lyman Alpha Absorption in the Vicinity of Galaxies", *Ap. J.*, **638**, 52. (astro-ph/0503674)

72. I. Ribas & J. Miralda-Escudé 2007. " The Eccentricity-Mass Distribution of Exoplanets: Signatures of Different Formation Mechanisms?", A & A, 464, 779

73. J. Miralda-Escudé 2007. " The Stryngbohtyk Model of the Universe: a Solution to the Problem of the Cosmological Constant", astro-ph/0307774.

74. J. Yoo, J. Miralda-Escudé, D. H. Weinberg, Z. Zheng, & C. W. Morgan 2007. " The Most Massive Black Holes in the Universe: Effects of Mergers in Massive Galaxy Clusters", *Ap. J.*, **667**, 813-825.

75. X. Chen & J. Miralda-Escudé 2008. " The 21-cm Signature of the First Stars", *Ap. J.*, **684**, 18-33.

76. F. Shankar, D. H. Weinberg, & J. Miralda-Escudé 2009. "Self-Consistent Models of the AGN and Black Hole Populations: Duty Cycles, Accretion Rates, and the Mean Radiative Efficiency", *Ap. J.*, **690**, 20. (arXiv:0710.4488)

77. Dalla Bontà, E., Ferrarese, L., Corsini, E. M., Miralda-Escudé, J., Coccato, L., Sarzi, M., Pizzella, A., & Beifiori, A. 2009. "The High-Mass End of the Black Hole Mass Function: Mass Estimates in Brightest Cluster Galaxies", *Ap. J.*, **690**, 537-559.

78. A. Font-Ribera, J. Miralda-Escudé, & I. Ribas 2009. "Protostellar Cloud Fragmentation and Inward Migration by Disk Capture as the Origin of Massive Exoplanets", *Ap. J.*, **694**, 183.

79. D. Roig, L. Verde, J. Miralda-Escudé, R. Jiménez, & C. Peña-Garay 2009. "Photometric Redshift Optimization for Measurements of the Baryon Acoustic Oscillation Radial Scale", *JCAP*, **4**, 8.

80. S. E. Koposov, J. Yoo, H.-W. Rix, D. H. Weinberg, A. V. Macciò, & J. Miralda-Escudé 2009. "A Quantitative Explanation of the Observed Population of Milky Way Satellite Galaxies", *Ap. J.*, **696**, 2179.

81. J. Miralda-Escudé 2009. "Comment on the Claimed Radial BAO Detection by Gaztañaga et al. ", arXiv:0901.1219.

82. F. Shankar, M. Crocce, J. Miralda-Escudé, P. Fosalba, & D. H. Weinberg 2010. "On the Radiative Efficiencies, Eddington Ratios, and Duty Cycles of Luminous High-Redshift Quasars", *Ap. J.*, **718**, 231. (arXiv:0810.4919).

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Total citations

The total number of citations as reported in ADS in January 2026 is about 30000. The normalized citations are about 5650. My h index is 80, and my h index based on normalized citations is 40. (In my modest opinion, normalized citations are the relevant measure of scientific impact because total citations strongly depend on the number of large collaborations that one is part of).

PhD theses and graduate students supervised

University of Pennsylvania, 2000: **Vibhat Nair**, "Studying the dark matter in the universe using microlensing, galaxy lensing, and galaxy clustering."

University of Pennsylvania, 2001: **Patrick McDonald**, "Cosmology from the Lyα Forest."

PhD students supervised on research projects at Ohio State University: **Khairul Alam, Julio Chanamé, Guangfei Jiang, Juna Kollmeier, Christopher Onken, Michael Schirber, Jaiyul Yoo, Zheng Zheng.**

Institut de Ciències de l'Espai, 2011: **Andreu Font-Ribera**, "Large-Scale Structure with Lyman Alpha Absorption Surveys."

Institut de Ciències del Cosmos, UB, Feb. 3 2015: **Andreu Arinyo-Prats**, "Physics of the Intergalactic Medium: A Study of the Power Spectrum of the Lyman-Alpha Forest and the Metal Content of Damped Lyman Alpha Systems."

Institut de Ciències del Cosmos, UB, Oct. 3 2016: **Ignasi Pérez-Ràfols**, "The Cross-Correlation among Tracers of the Underlying Large-Scale Mass Distribution in the Universe."

Institut de Ciències del Cosmos, UB, Sep. 22 2017: **Satya Gontcho A Gontcho**, "Exploring the Universe with Quasar Absorption Spectra: correlations among tracers of the mass density field and the impact of ionizing background intensity fluctuations."

Institut de Ciències del Cosmos, UB, May 12 2022: **Carles Garcia Palau**, "Statistical Detection of Tidal Streams Generated by Globular Clusters and their Application to Measure the Axis Ratio of the Milky Way Dark Matter Halo."

Institut de Ciències del Cosmos, UB, June 3 2022: **Marc Oncins Fernández**, "Observational Consequences of Black Holes in the Universe: from Dark Matter Candidates to Quasars."

Present graduate students: **Adrián Santander** (started 2023).

Master students supervised at the Institut de Ciències del Cosmos, Universitat de Barcelona: Eduard Arnau (2011), Ignasi Pérez-Ràfols (2012), Lluís Mas-Ribas (2014), Núria Jordana (2017), Jorge Vicens (2017), Oindrila Ghosh (2019), Adrián Santander (2022), Deepnika Jain (2025).

Undergraduate students supervised at UB for "Treball Fi de Grau": Enric Dalmau Bonvehí(2020), Martí Circuns Duxans (2020), Carla Salas Molar (2022), Víctor Garcia Cotonat (2022), Claudi Vall-Mühler (2024), Gabriel Torralba Caroz (2025).

Fulbright Fellowship student supervised: Karna Morey (2022-23), now PhD student at Stanford University).