

José A. Benavides

Curriculum Vitae

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ADS publications: [Benavides, J](#)

Google Scholar: [Jose Benavides](#)

My website: [josebenavides](http://josebenavides.com)

Education

- 2018 – 2023 **Ph.D. in Astronomy**, *Universidad Nacional de Córdoba, Argentina.*
Thesis title: *Assembly of Galaxy Clusters and Formation of Ultra-Diffuse Galaxies*
- 2012 – 2015 **M.Sc. in Physics.**, *Universidad Nacional de Colombia, Colombia..*
Thesis title: *Numerical Simulations of the Infall of Dwarf Galaxies Associations Into the Milky Way Halo.*
- 2006 – 2012 **B.S. in Physics**, *Universidad Pedagógica Nacional, Bogotá - Colombia.*

Research Experience

- 03/2023 – Present **Postdoctoral Researcher**, *Physics & Astronomy Department, University of California, Riverside - United States.*
- 05/2025 – 07/2025 **Visiting Researcher**, *Institute for Computational Cosmology (ICC) - Durham University, Durham - United Kingdom.*
- 04/2021 – 03/2023 **Doctoral Fellowship**, *Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina.*
- 03/2022 – 06/2022 **Visiting Researcher - LACEGAL**, *Istituto Nazionale di Astrofisica (INAF) & Osservatorio Astronomico di Trieste, Italy.*
- 04/2018 – 03/2021 **Doctoral Fellowship**, *Secretaría de Ciencia y Tecnología (SeCyT), UNC, Córdoba - Argentina.*
- 04/2014 – 04/2015 **Young Resercher**, *Universidad Nacional de Colombia, Facultad de Ciencias, Bogotá - Colombia.*
- 03/2013 – 03/2014 **Magister's Fellowship**, *Universidad Nacional de Colombia, Facultad de Ciencias, Bogotá - Colombia.*

Teaching Experience

- 08/2020 – 03/2022 **Teaching Assistant**, *Universidad Nacional de Córdoba, FAMAF, Córdoba - Argentina.*
- 08/2013 – 04/2018 **Assistant Professor (Full-time)**, *Universidad Antonio Nariño, Facultad de Ciencias, Bogotá - Colombia.*
- 04/2013 – 12/2013 **Teaching Assistant**, *Universidad Nacional de Colombia, Facultad de Ciencias, Bogotá - Colombia.*
- 03/2012 – 03/2013 **Teacher, high school (Full-time)**, *Colegio del Bosque Bilingüe, UAN, Bogotá - Colombia.*

Selected talks

- 09/2025 **Morphological transition in low-mass galaxies**, *Physics and Astronomy Student Seminar (PASS), UCR, California.*

- 06/2025 **Formation and Evolution of Ultra-Diffuse Galaxies in TNG50**, *Cosmology/Galaxy seminar*, MPA, München.
- 05/2025 **Exploring some challenges in dwarf galaxies with cosmological simulations**, *TRACES group meeting (invited talk)*, IAC, Tenerife.
- 05/2025 **Dwarf Galaxies and Open Challenges in LCDM: Morphology, UDGs, and Quenching in the Field**, *Durham Astronomy Colloquium*, ICC, Durham.
- 04/2025 **Exploring some challenges of low-mass objects: ultra-diffuse galaxies and quenched isolated dwarfs**, *Tuesday Talk*, UCLA, California.
- 11/2024 **Morphological transition in simulated low-mass galaxies in FIREbox**, *Weekly Galaxies meeting - simulators, observers, Local Group and external gal experts*, Columbia University, New York.
- 11/2024 **Morphological transition in simulated low-mass galaxies in FIREbox**, *Galaxy group meeting/seminar*, CCA, Flatiron Institute, New York.
- 11/2024 **Morphological transition in simulated low-mass galaxies in FIREbox**, *MKI-colloquium*, MIT, Boston.
- 11/2024 **Galaxy cluster assembly and substructure detection**, *3rd International Congress on Research and Teaching of Physics (Invited talk)*, Universidad Nacional Abierta y a Distancia - UNAD, Bogotá.
- 04/2022 **Formation of Ultra-Diffuse galaxies in different environments**, *IFPU Special Seminar*, Trieste.
- 04/2022 **Formation of Ultra-Diffuse galaxies in different environments**, *Friends of Friends Meeting (invited talk)*, IATE-CONICET, Córdoba.

Publications as first author (7)

- Benavides, José A.**, Sales, L. V., Wetzel, A., Moreno, J., Feldmann, R., Mercado, F. J., Bullock, J. S., Hopkins, P. F., Faucher-Giguère, C.-A., Stern, J., Wheeler, C., & Kereš, D. (2025). Disks no more: the morphology of low-mass simulated galaxies in FIREbox. (*Submitted to MNRAS*) *arXiv e-prints* arXiv 2508.00991, arXiv:2508.00991. <https://doi.org/10.48550/arXiv.2508.00991>
- Benavides, José A.**, Navarro, J. F., Sales, L. V., Pérez, I., & Bidaran, B. (2025). The Environmental Quenching Mechanisms of Field Dwarf Galaxies. *The Astrophysical Journal*, 985(1) arXiv 2501.13159, 86. <https://doi.org/10.3847/1538-4357/adced0>
- Benavides, José A.**, Sales, L. V., Abadi, M. G., Vogelsberger, M., Marinacci, F., & Hernquist, L. (2024). Large Dark Matter Content and Steep Metallicity Profile Predicted for Ultradiffuse Galaxies Formed in High-spin Halos. *The Astrophysical Journal*, 977(2) arXiv 2407.15938, 169. <https://doi.org/10.3847/1538-4357/ad8de8>
- Benavides, José A.**, Sales, L. V., Abadi, M. G., Marinacci, F., Vogelsberger, M., & Hernquist, L. (2023). Origin and evolution of ultradiffuse galaxies in different environments. *Monthly Notices of the Royal Astronomical Society*, 522(1) arXiv 2209.07539, 1033–1048. <https://doi.org/10.1093/mnras/stad1053>
- Benavides, José A.**, Biviano, A., & Abadi, M. G. (2023). DS+: A method for the identification of cluster substructures. *Astronomy & Astrophysics*, 669 arXiv 2212.00040, A147. <https://doi.org/10.1051/0004-6361/202245422>
- Benavides, José A.**, Sales, L. V., Abadi, M. G., Pillepich, A., Nelson, D., Marinacci, F., Cooper, M., Pakmor, R., Torrey, P., Vogelsberger, M., & Hernquist, L. (2021). Quiescent ultra-diffuse galaxies

in the field originating from backplash orbits. *Nature Astronomy*, 5arXiv 2109.01677, 1255–1260. <https://doi.org/10.1038/s41550-021-01458-110.48550/arXiv.2109.01677>

Benavides, José A., Sales, L. V., & Abadi, M. G. (2020). Accretion of galaxy groups into galaxy clusters. *Monthly Notices of the Royal Astronomical Society*, 498(3)arXiv 2005.05344, 3852–3862. <https://doi.org/10.1093/mnras/staa2636>

Publications as coauthor (11)

Celiz, B. M., **Benavides, José A.**, & Abadi, M. G. (2025). Compact groups of galaxies in the TNG100 simulation. (*Accepted to Astronomy & Astrophysics*) arXiv e-printsarXiv 2508.13293, arXiv:2508.13293. <https://doi.org/10.48550/arXiv.2508.13293>

Mancera Piña, P. E., Read, J. I., Kim, S., Marasco, A., **Benavides, José A.**, Glowacki, M., Pezzulli, G., & Lagos, C. d. P. (2025). The galaxy-halo connection of disc galaxies over six orders of magnitude in stellar mass. *Astronomy & Astrophysics*, 699arXiv 2505.22727, A311. <https://doi.org/10.1051/0004-6361/202554381>

Arjona-Gálvez, E., Cardona-Barrero, S., Grand, R. J. J., Di Cintio, A., Dalla Vecchia, C., **Benavides, José A.**, Macciò, A. V., Libeskind, N., & Knebe, A. (2025). A physically motivated galaxy size definition across different state-of-the-art hydrodynamical simulations. *Astronomy & Astrophysics*, 699arXiv 2502.20398, A301. <https://doi.org/10.1051/0004-6361/202554290>

Mercado, F. J., Moreno, J., Feldmann, R., Zeender, M., **Benavides, José A.**, Piotrowska, J. M., Klein, C., Wheeler, C., Necib, L., Bullock, J. S., & Hopkins, P. F. (2025). Effects of Galactic Environment on Size and Dark Matter Content in Low-mass Galaxies. *The Astrophysical Journal*, 983(2)arXiv 2501.04084, 93. <https://doi.org/10.3847/1538-4357/adb0f7>

Costa, A. P., Ribeiro, A. L. B., de Carvalho, R. R., & **Benavides, J A.** (2024). Boosting the evolutionary picture of galaxy clusters: a case study at intermediate-redshift of Cl 0024+17 and MS 0451-03. *Monthly Notices of the Royal Astronomical Society*, 535(2)arXiv 2410.19037, 1348–1363. <https://doi.org/10.1093/mnras/stae2410>

Klein, C., Bullock, J. S., Moreno, J., Mercado, F. J., Hopkins, P. F., Cochrane, R. K., & **Benavides, José A.** (2024). Size-mass relations for simulated low-mass galaxies: mock imaging versus intrinsic properties. *Monthly Notices of the Royal Astronomical Society*, 532(1)arXiv 2404.02373, 538–548. <https://doi.org/10.1093/mnras/stae1505>

Sazonova, E., ..., **Benavides, José A.**, & ... (2024). RMS asymmetry: a robust metric of galaxy shapes in images with varied depth and resolution. *The Open Journal of Astrophysics*, 7arXiv 2404.05792, 77. <https://doi.org/10.33232/001c.123524>

Matek, K., ..., **Benavides, J. A.**, & ... (2024). Attenuation proxy hidden in surface brightness-colour diagrams. A new strategy for the LSST era. *Astronomy & Astrophysics*, 684arXiv 2401.12831, A30. <https://doi.org/10.1051/0004-6361/202348432>

Doppel, J. E., Sales, L. V., **Benavides, José A.**, Toloba, E., Peng, E. W., Nelson, D., & Navarro, J. F. (2024). Imposters among us: globular cluster kinematics and the halo mass of ultra-diffuse galaxies in clusters. *Monthly Notices of the Royal Astronomical Society*arXiv 2309.03260. <https://doi.org/10.1093/mnras/stae647>

Martin, G., ..., **Benavides, J. A.**, & ... (2022). Preparing for low surface brightness science with the Vera C. Rubin Observatory: Characterization of tidal features from mock images. *Monthly Notices of the Royal Astronomical Society*, 513(1)arXiv 2203.07675, 1459–1487. <https://doi.org/10.1093/mnras/stac1003>

Ferrero, I., Navarro, J. F., Abadi, M. G., **Benavides, José A.**, & Mast, D. (2021). A unified scenario for the origin of spiral and elliptical galaxy structural scaling laws. *Astronomy & Astrophysics*, 648arXiv 2009.03916, A124. <https://doi.org/10.1051/0004-6361/202039839>

Others publications on ArXiv

Wetzel, A., Samuel, J., Gandhi, P. J., Ponnada, S. B., Su, K.-Y., Arora, A., Angles-Alcazar, D., Hayward, C. C., Sanderson, R. E., Feldmann, R., Cochrane, R., Nikakhtar, F., Panithanpaisal, N., **Benavides, Jose A.**, Pandya, V., Grudic, M., Hummels, C., Gurvich, A. B., Hafen, Z., . . . Hopkins, P. F. (2025). Second public data release of the FIRE-2 cosmological zoom-in simulations of galaxy formation. *arXiv e-prints*arXiv 2508.06608, arXiv:2508.06608.

Celiz, B. M., **Benavides, J. A.**, & Abadi, M. G. (2023). Formación de grupos compactos de galaxias en simulaciones cosmológicas hidrodinámicas. *Boletín de la Asociación Argentina de Astronomía La Plata Argentina*, 64, 229–231.

Benavides, J. A., & Abadi, M. G. (2021). Ensamblaje de cúmulos de galaxias por eventos de acreción de grupos de galaxias. *Boletín de la Asociación Argentina de Astronomía La Plata Argentina*, 62, 171–173.

Daza, I., Alfaro, I. G., **Benavides, J. A.**, Lares, M., Santucho, M. V., Cabral, J. B., O'Mill, A. L., Rodríguez, F., & Koraj, M. (2021). PISCIS: Platform for Interactive Search and Citizen Science. *Boletín de la Asociación Argentina de Astronomía La Plata Argentina*, 62, 310–312.

Benavides, J. A., Abadi, M. G., & Sales, L. V. (2022). El origen de las galaxias Ultra-Difusas apagadas en el campo. *Boletín de la Asociación Argentina de Astronomía La Plata Argentina*, 63, 208–210.

Benavides, Jose A., Chalela, M., Cabral, J. B., Sánchez, B. O., & Gurovich, S. (2021). SCORPIO, a package for the visualization of galaxy pairs. *arXiv e-prints*arXiv 2111.01260, arXiv:2111.01260.

Benavides, José, & Casas-Miranda, R. A. (2018). Simulaciones numéricas de la formación del disco de satélites de la vía láctea a partir de la acreción de asociaciones de galaxias enanas. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales*, 42(162), 32–40. <https://doi.org/10.18257/raccefyn.561>

Benavides, J., & Casas-Miranda, R. A. (2018). Infall of Associations of Dwarf Galaxies into the Milky Way Halo. *Revista Mexicana de Astronomía y Astrofísica Conference Series*, 50, 13–14.

Conferences and Workshops

Benavides, J., & Sales, L. (2025a). *Galaxy Formation & Evolution in Southern California (GalFRESCA) meeting. UCSD-California, USA. Oral presentation.*

Benavides, J., & Sales, L. (2025b). *10 Years of Ultra-Diffuse Galaxies, past perspectives and future prospects. Benasque, Spain. Oral presentation.*

Benavides, J., Navarro, J., & Sales, L. (2024a). *Mind the Gap: Galaxies and Large-Scale Structure. Córdoba, Argentina. Oral presentation.*

Benavides, J., Navarro, J., & Sales, L. (2024b). *VIII Congreso Colombiano de Astronomía (COCOA). Universidad Industrial de Santander, Bucaramanga-Colombia. Oral presentation.*

Benavides, J., Sales, L., Moreno, J., Bullock, J., Wetzel, F., A. Mercado, & Feldmann, R. (2024). *Galaxy Formation & Evolution in Southern California (GalFRESCA) meeting. Pasadena-California, USA. Oral presentation.*

- Benavides, J., Sales, L., & Abadi, M. (2024a).** *Workshop: Dwarf Galaxies, Star Clusters, and Streams in the LSST Era. Chicago, USA. Poster presentation.*
- Benavides, J., Sales, L., & Abadi, M. (2024b).** *Latin American Conference on Astrophysics and Relativity. Bogotá, Colombia. Oral presentation.*
- Benavides, J., Sales, L., & Abadi, M. (2023a).** *4th Regional Extragalactic Astronomy Meeting: 60 Years Of The Sersic Law. Córdoba, Argentina. Oral presentation.*
- Benavides, J., Sales, L., & Abadi, M. (2023b).** *XVII Latin American Regional IAU Meeting. Montevideo, Uruguay. Oral presentation.*
- Benavides, J., & Sales, L. (2023a).** *Galaxy Formation & Evolution in Southern California (GalFRESCA) meeting. Riverside-California, USA. Oral presentation.*
- Benavides, J., & Sales, L. (2023b).** *Hiking through the unexplored Universe: the sunrise of ultra diffuse galaxies. Sexten, Italy. Oral presentation.*
- Benavides, J., Abadi, M., & Sales, L. (2022a).** *64^a Reunión Anual de la Asociación Argentina de Astronomía. Buenos Aires, Argentina. Oral presentation.*
- Benavides, J., Abadi, M., & Sales, L. (2022b).** *Special Seminar, hosted by the Galaxy Clusters group. Institute for Fundamental Physics of the Universe (IFPU), Trieste-Italy. Oral presentation.*
- Benavides, J., Abadi, M., & Sales, L. (2022c).** *XI Friends of Friends Meeting – Linking astronomy and friends in Virtual Córdoba. Universidad Nacional de Córdoba, Córdoba-Argentina. Oral virtual presentation.*
- Benavides, J., & Abadi, M. (2021).** *X Friends of Friends Meeting – Linking astronomy and friends in Virtual Córdoba. Universidad Nacional de Córdoba, Córdoba-Argentina. Oral presentation.*
- Benavides, J., Abadi, M., & Sales, L. (2021).** *63^a Reunión Anual de la Asociación Argentina de Astronomía. Córdoba, Argentina. Oral presentation.*
- Benavides, J., & Abadi, M. (2020).** *62^a Reunión Anual de la Asociación Argentina de Astronomía. Rosario, Argentina. Oral presentation.*
- Benavides, J. (2020).** *Salón de la Ciencia 2020. Divulgando la Ciencia desde Casa. Universidad Pedagógica Nacional, Bogotá-Colombia. Oral presentation.*
- Benavides, J., & Bohórquez, O. (2017).** *V Congreso Colombiano de Astronomía (COCOA). Universidad Tecnológica de Pereira, Risaralda-Colombia. Oral presentation.*
- Benavides, J. (2017a).** *Encuentro Latinoamericano eCiencia. San Jose-Costa Rica. Oral presentation.*
- Benavides, J. (2017b).** *VII Astronomía Dinámica en Latinoamérica. Universidad de los Andes, Bogotá-Colombia. Oral presentation.*
- Benavides, J. (2016).** *“Diálogo hacia una formación integral en ciencias”. Universidad Antonio Nariño, Bogotá-Colombia. Organizing Committee and participant.*
- Benavides, J., & Casas-Miranda, R. A. (2016).** *XV Latin American Regional IAU Meeting. Cartagena de Indias, Colombia. Poster presentation.*
- Benavides, J., & Bohórquez, O. (2015).** *XXVI Congreso Nacional de Física. Universidad del Nacional de Colombia, Manizales-Colombia. Oral presentation.*
- Benavides, J. (2015).** *Segundo Workshop de Astronomia en los Andes. Universidad de los Andes, Bogotá-Colombia. Poster presentation.*

Benavides, J. (2014a). *I Escuela Andina de Astronomía y Astrofísica. Quito-Ecuador. Oral presentation.*

Benavides, J. (2014b). *IV Congreso Colombiano de Astronomía (COCO A). Universidad de Nariño, Pasto-Colombia. Poster presentation.*

Benavides, J. (2013). *XXV Congreso Nacional de Física. Universidad del Quindío, Quindío-Colombia. Poster presentation.*

Service

- 2024–Present Reviewer for *The Astrophysical Journal (ApJ)*
- 2024–Present Reviewer for *Astronomy & Astrophysics (A&A)*
- 2024–Present Reviewer for *Monthly Notices of the Royal Astronomical Society (MNRAS)*
- 2024–Present Reviewer for *Nature Communications (Nat. Commun)*
- 2024–Present Reviewer for *The Open Journal of Astrophysics (OJAp)*
- 2024–Present Reviewer for *Boletín de la Asociación Argentina de Astronomía (BAAA)*
- 2018–2023 Local Organizing Committee, Noche de los Museos, Observatorio Astronómico de Córdoba - Argentina
- 2016 Local Organizing Committee, Conference: Diálogo hacia una formación integral en ciencias, Universidad Antonio Nariño (UAN)

Skills

- Programming Python, Fortran, Bash, Git, LaTeX, SQL
- Languages Spanish (native), English (fluent)

References

- Dr. Laura V. Sales Associate Professor - University of California, Riverside
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- Dr. Mario G. Abadi Associate Professor - National University of Cordoba, Argentina
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- Dr. Julio Navarro Associate Professor - University of Victoria, Canada
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