Juan Manuel

Espejo Salcedo

Curriculum Vitae

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I am an astronomer with a strong interest in theoretical and observational cosmology.

General Information

Name Juan Manuel Espejo Salcedo.
Date of Birth 13^{th} March, 1993.
Nationality Colombian.
Website `https://juancho9303.github.io`
YouTube https://www.youtube.com/c/betweenwhiles

Education

2019-2022 **PhD (candidate) in Astronomy**, *Galactic angular momentum at high redshift*, Swinburne University of Technology, Melbourne, Australia

2016-2018 **M.Sc. in Astronomy and Cosmology**, *Sterrenwacht*, Leiden University, Netherlands

Thesis 2018 "Phenomenology of Large Scale Structure in scalar-tensor theories: joint prior covariance of $w_{\rm DE}$, Σ and μ in Horndeski". Prof. Alessandra Silvestri

Thesis 2017 "Study of BCG subtracted images of nearby clusters". Prof. Henk Hoekstra

2011-2016 **B.Sc. in Astronomy**, *Physics Institute, Universidad de Antioquia*, Medellín, Colombia.

Thesis "Mass Modelling of Globular Clusters in the Milky Way". Prof. Juan Carlos Muñoz Cuartas

2010 **High School**, *Colegio Seminario Diocesano*, Duitama, Colombia.

Additional Education

2019-2021 **Graduate Certificate of Research and Innovation Management**, *Swinburne University of Technology, Melbourne, AU.*

2011-2015 **Extension Courses: Black Holes**, *Prof. Jorge Zuluaga*, **Radiative Processes in Astrophysics**, *Prof. Elena Rossi*, **Observational Techniques in Astronomy**, *Prof. Bernard Brandl*, **Interferometry**, *Prof. Rudolf Lepole*, **Gravitational Lensing**, *Prof. Konrad Kuijken*, **Galaxy Formation**, *Jarle Brinchmann*, **Introduction to Radio Astronomy**, *Prof. Stanley Kurtz.*

2018-2009 **11^{th} grade in American High School as a foreign exchange student**, *Rowan County Senior High School*, Morehead, Kentucky, United States.

Fields of Interest

Galaxies and Cosmology. Large-scale structure formation. Galactic astrophysics. Computational astrophysics. General astrophysics and physics.

Languages

Spanish Native speaker.

English Fluent.

Portuguese Basic.

Computer Skills

Systems Linux, MacOS, Windows.

Development Python, C, Bash, SQL, ssh.

Software github, Galfit, Starlight, Iraf, Mathematica, LaTeX, gnuplot, Sextractor, Adobe Premiere Pro, EFTCamb.

Tools Experience with supercomputers (`NOVAMARIS` at Leiden, `OzStar` at Swinburne), N-body simulations, MonteCarlo, Numerical methods, emcee.

Repositories A list of some of my projects can be found in my *github* page: `https://github.com/juancho9303`.

Honours, Awards, and Accomplishments

2022 **Swinburne High-degree Research Boost Award, 2000 AUD one-off payment**, *Swinburne University of Technology, Melbourne, Australia.*

2018-2022 **Swinburne University Postgraduate Research Award (SUPRA)**, *Swinburne University of Technology, Melbourne, Australia.*

2016-2018 **Leiden Excellence Scholarship (LExS)**, *Leiden University*, Leiden, Netherlands.

2016-2018 **Colfuturo postgraduate funding**, Bogotá, Colombia.

2016 **Enlazamundos funding for development grant**, *Sapienza*, Medellín, Colombia.

2014 **First class fourth year student of Astronomy, tuition fee exonerated**, *Universidad de Antioquia*, Medellín, Colombia.

2012,2013 **Basketball scholarships, tuition fee exonerated**, *Universidad de Antioquia*, Medellín, Colombia.

2005 - 2009 **First in the class, tuition fee exonerated**, *Colegio Seminario Diocesano*, Duitama, Colombia.

Research Experience and Publications

2020-2021 Awarded observing time as Co-I for Keck (OSIRIS) twice, ALMA (cycle 8) and JWST (cycle 1).

2021 Juan M. Espejo Salcedo, Karl Glazebrook, Deanne B. Fisher, Sarah M. Sweet, Danail Obreschkow, A. M. Swinbank, Steven Gillman and Alfred L. Tiley. **Multi-resolution angular momentum measurements of $z \sim 1.5-2$ star-forming galaxies**, 10.1093/mnras/stab2755

2021 Themiya Nanayakkara, James Esdaile, Karl Glazebrook, Juan M. Espejo Salcedo, Mark Durre, Colin Jacobs. **Massive High-Redshift Quiescent Galaxies With JWST**, 10.1017/pasa.2021.61

2019 Espejo, J., Peirone, S., Raveri, M., Pogosian, L., Silvestri, A. **Phenomenology of Large Scale Structure in scalar-tensor theories: joint prior covariance of $w_{\rm DE}$, Σ and μ in Horndeski**, PhysRevD.99.023512

2020 Sarah M Sweet, Karl Glazebrook, Danail Obreschkow, Deanne B Fisher, Andreas Burkert, Claudia DP Lagos, Juan M Espejo Salcedo. **Stellar angular momentum distribution linked to galaxy morphology**, 10.1093/mnras/staa1050

2014 **Stratospheric Cosmic Ray Detector development**, *Group of computational physics and astrophysics (FaCom), Ideatech (Ruta N) & Universidad de Antioquia*, Medellín, Colombia.

Work Experience

2022 AstroTour coordinator at Swinburne University of Technology.

2021 Tutor for the “Discovering the Universe" undergrad unit at Swinburne University of Technology.

2020-2021 Mentor of colombian students looking for post-graduate positions as part of RECA mentoring program.

2020-2021 Student representative of the Swinburne Time Allocation Committee for the Keck Telescope (STACK).

2020 Tutor for the “Introduction to physics" undergrad unit at Swinburne University of Technology.

2019-2022 Public AstroTours at Swinburne University of Technology.

2015 English Tutor online **NiceTalk Tutor app, Enter Trainer app**.

2014-2015 Science development magazine editor **"Mínima Acción" Magazine**, Medellín, Colombia.

2014,2015 English and Math Tutor.

Participation in Events

2023 (Seminar talk) **The multi-resolution angular momentum measurement of star-forming galaxies at cosmic noon**, *Seminar to the IR group at MPE (Max Planck Institute for Extraterrestrial Astrophysics)* Garching, Germany, January, 2023.

2022 (Contributed talk) **What drives disk instabilities and star-forming clumps at cosmic noon?**, *IAU GA Symposium 373: “Resolving the rise and Fall of Star Formation"*, in Busan, South Korea, August, 2022.

2022 (Contributed talk) **What drives disk instabilities and star-forming clumps at cosmic noon?**, *ASTRO-3D science meeting*, hosted in Melbourne, June, 2022.

2021 (Science Organizing Committee member) **Harley Wood School for Astronomy**, *Wodonga, VIC, AU.*

2021 (Contributed talk) **Multi-resolution angular momentum measurements of $z \sim 1.5-2$ star-forming galaxies.**, *MAVIS workshop*, Online event, hosted in Italy, July, 2021.

2021 (Poster presentation) **Multi-resolution angular momentum measurements of $z \sim 1.5-2$ star-forming galaxies.**, *Keck Science Meeting*, Online event, hosted in San Diego California, USA, 2021.

2020 (Contributed talk) **Improved Angular Momentum measurements of star-forming galaxies with the aid of adaptive optics**, *European Astronomical Society annual meeting EAS2020*, Leiden, The Netherlands, 2020.

2020 (Organizer and presenter) **JWST workshop for Australian astronomers**, *Swinburne University of Technology*, Melbourne, Australia, 2020.

2018 Participant **Galactic angular momentum focus meeting**, *30th General assembly of the IAU*, Vienna, Austria.

2014 (Oral presentation) **Stratospheric Cosmic Ray detector**, *IV Colombian Congress of Astronomy and Astrophysics*, Pasto, Colombia, 2014.

Personal Activities

Basketball. Track and Field. Writing. Teaching. Origami. Hiking. Reading. Science public outreach.

References

(from most recent to earlier)

- **Karl Glazebrook.** *Ph.D supervisor.*
  Laureate Fellow & Distinguished Professor at the Centre for Astrophysics and Supercomputing, SUT, Melbourne, AU.
  kglazebrook@swin.edu.au

- **Deanne Fisher.** *Ph.D co-supervisor.*
  Future Fellow Fellow at the Centre for Astrophysics and Supercomputing, SUT, Melbourne, AU.
  dfisher@swin.edu.au

- **Alessandra Silvestri.** *Master thesis (second project) supervisor.*
  Lorentz Institute, Leiden University, Netherlands.
  silvestri@lorentz.leidenuniv.nl

- **Henk Hoekstra.** *Master thesis (first project) supervisor.*
  Leiden Observatory, Leiden University, Netherlands.
  hoekstra@strw.leidenuniv.nl

- **Juan Carlos Muñoz Cuartas.** *Undergraduate thesis supervisor*
  Assistant Professor, Physics Institute, Universidad de Antioquia, Medellín, Colombia.
  jcmunoz@fisica.udea.edu.co