

# Juan Manuel

## Espejo Salcedo

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Curriculum Vitae

Melbourne, Australia  
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*I am an astronomer with a strong interest in theoretical and observational cosmology.*

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## GENERAL INFORMATION

**Name** Juan Manuel Espejo Salcedo.  
**Date of Birth** 13<sup>th</sup> March, 1993.  
**Nationality** Colombian.  
**Marital Status** Engaged.  
**Website** <https://juancho9303.github.io>  
**YouTube** <https://www.youtube.com/c/betweenwhiles>

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## 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  $w_{DE}$ ,  $\Sigma$  and  $\mu$  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<sup>th</sup> grade in American High School as a foreign exchange student, *Rowan County Senior High School*, Morehead, Kentucky, United States.

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## FIELDS OF INTEREST

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

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## LANGUAGES

**Spanish** Native speaker.  
**English** Fluent.  
**Portuguese** Basic.

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## 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>.

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## HONOURS, AWARDS, AND ACCOMPLISHMENTS

**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*.

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## RESEARCH EXPERIENCE AND PUBLICATIONS

**2020-2021** Awarded observing time 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**, DOI: 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**, arxiv link: 2103.01459  
**2019** Espejo, J., Peirone, S., Raveri, M., Pogosian, L., Silvestri, A. **Phenomenology of Large Scale Structure in scalar-tensor theories: joint prior covariance of  $w_{DE}$ ,  $\Sigma$  and  $\mu$  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*.

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## WORK EXPERIENCE

- 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.
- 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.

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## PARTICIPATION IN EVENTS

- 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.

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## PERSONAL ACTIVITIES

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

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## 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 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`