

# Juan Manuel

## Espejo Salcedo

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Curriculum Vitae

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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** In a de facto relationship.  
**Identification** c.c. 1152200185  
**Passport** AP514388  
**Address** 18/70 Nott Street, Melbourne, Australia  
**Personal Blog** <http://juanespejo0313.blogspot.com.co/>  
**YouTube** <https://bit.ly/2OXq01s>

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## EDUCATION

**2010** **High School**, *Colegio Seminario Diocesano*, Duitama, Colombia.  
**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  
**2016-2018** **M.Sc. in Astronomy and Cosmology**, *Sterrenwacht*, Leiden University, Netherlands  
**Thesis 2017** “Study of BCG subtracted images of nearby clusters”. Prof. Henk Hoekstra  
**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  
**2019-2022** **PhD (candidate) in Astronomy**, *Galactic angular momentum*, Swinburne University of Technology, Melbourne, Australia

## ADDITIONAL EDUCATION

**2018-2009** 11<sup>th</sup> grade in American High School, *Rowan County Senior high school*, Morehead, Kentucky, United States.  
**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.

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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, Windows.  
**Development** C, Python, Bash, SQL, ssh.  
**Software** github, Galfit, Starlight, Iraf, Mathematica, LaTeX, gnuplot, SExtractor, CosmoMC, EFTCamb.  
**Tools** N-body simulations, MonteCarlo, Numerical integrators.  
**Repositories** A list of my projects can be found in my *github* page: <https://github.com/juancho9303>.

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## HONOURS, AWARDS, AND ACCOMPLISHMENTS

**2005 - 2009** **First in the class, tuition fee exonerated**, *Colegio Seminario Diocesano*, Duitama, Colombia.  
**2012,2013** **Basketball scholarships, tuition fee exonerated**, *Universidad de Antioquia*, Medellín, Colombia.  
**2014** **First class fourth year student of Astronomy, tuition fee exonerated**, *Universidad de Antioquia*, Medellín, Colombia.  
**2016** **Enlazamundos funding for development grant**, *Sapienza*, Medellín, Colombia.  
**2016-2018** **Colfuturo postgraduate funding**, Bogotá, Colombia.  
**2016-2018** **Leiden Excellence Scholarship (LExS)**, *Leiden University*, Leiden, Netherlands.  
**2018-2022** **Swinburne University Postgraduate Research Award (SUPRA)**, *Swinburne University of Technology*, Melbourne, Australia.

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## RESEARCH EXPERIENCE AND PUBLICATIONS

**2018** Espejo, J., Peirone, S., Raveri, M., Pogossian, 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  
**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

**2014** Business interpreter in an international textile fair **Sri. NRKR textiles, India**, *ColombiaTex*, Medellín, Colombia, 2014.  
**2014-2015** Science development magazine editor "**Mínima Acción**" Magazine, Medellín, Colombia.  
**2015** English Tutor online **NiceTalk Tutor app, Enter Trainer app**.  
**2014,2015** English and Math Tutor.

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## PARTICIPATION IN EVENTS

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

- 2018** Participant **Galactic angular momentum focus meeting**, *30th General assembly of the IAU*, Vienna, Austria.
- 201-2016** (Oral presentations) **On being a scientist**, *Boyacá, Colombia*.

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## PERSONAL ACTIVITIES

Writing. Basketball. Track and Field. Gymnasium. Teaching. Origami. Hiking. Business Interpretation and translation. Reading. Science public outreach.

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## REFERENCES

- **Juan Carlos Muñoz-Cuartas, Ph.D.**  
Assistant Professor, Physics Institute, Universidad de Antioquia, Medellín, Colombia.  
`jcmunoz@fisica.udea.edu.co`
- **Jorge Zuluaga Callejas, Ph.D.**  
Assistant Professor, Physics Institute, Universidad de Antioquia, Medellín, Colombia.  
`zuluagajorge@gmail.com`
- **Scott Wymer, Ph.D.**  
CIO, CTO - Data180, LLC. Perrysburg, Ohio, United States.  
`sawyer@gmail.com`
- **Henk Hoekstra, Ph.D.**  
Leiden Observatory, Leiden University, Netherlands.  
`hoekstra@strw.leidenuniv.nl`
- **Alessandra Silvestri, Ph.D.**  
Lorentz Institute, Leiden University, Netherlands.  
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