Diego Sotillo Ramos

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Education

Max-Planck-Institut für Astronomie, Heidelberg, Germany   *Nov 2019 – Jul 2024*

PhD in astrophysics. "Milky Way and M31 analogues: insights from the cosmological simulation TNG50". Advisor: Dr. Annalisa Pillepich

- Study of key facets of Milky Way- and Andromeda-like galaxies' formation, evolution and structure in the cosmological context provided by the magneto-hydrodynamical simulation TNG50: the impact of recent major mergers on galaxy stellar disks, the diversity and variety of manifestations of stellar disk flaring, and the presence of very metal-poor stars in the stellar disks and the other morphological components.
- Tools: Python, remote high performance computing and analysis and visualization of large datasets (both from TNG50 and from observational surveys). Execution of zoom-in simulations of MW-like galaxies using the AREPO code and the IllustrisTNG theoretical galaxy formation model.

Universidad Complutense de Madrid   *Sep 2017 – Sep 2018*

Máster en astrofísica (MS in astrophysics)

- Master thesis: "Infrared luminosity function of the galaxy cluster Abell 1763" at ESAC (European Space Astronomy Centre, ESA Spain). Advisors: Dr. Ana María Pérez-García and Dr. Ricardo Pérez-Martínez
- Coursework: Formation, evolution and dynamic of galaxies, Advanced cosmology, Experimental and statistical (incl. Bayesian and MCMC) techniques, Interstellar medium, Star atmospheres, etc. Tools: IRAF, DS9, LePhare, TOPCAT, Python and R

Universidad Nacional de Educación a Distancia   *Oct 2013 – Feb 2019*

Grado en física (BS in physics)

- Coursework: Statistical mechanics, quantum physics, differential geometry and tensors, general relativity, etc.
- Three years part-time while working full-time (10/2013-07/2016)

Universität Stuttgart   *Nov 2009 – June 2010*

Final project in mechanical engineering

- "Calculation methods for simulation of energy consumption and emissions for train runs with different traction modes". Calculation of driving dynamics, motor traction, energy consumption and emissions. Advisor: Jochen Rowas

Universidad de Valladolid   *Sep 2004 – June 2009*

Ingeniería industrial (Industrial engineering). Specialty: mechanics and vehicles

- Coursework: Vibrations, Mechanisms and Machines, Welding, Manufacturing processes, Theory of ground vehicles, Engines, and Transport engineering

Professional experience

NVH Engineer. Vibration and acoustics of brake systems   *Weissach, Germany*

Dr. Ing. h.c. F. Porsche Aktiengesellschaft   *Jan 2012 – Jul 2016*

- Execution and processing of NVH measurements. Planning and support of bench and vehicle tests. Performing modal analyses
- Codevelopment of the brake noise data logger "Remotasoft MoBSi"
- Mentoring of Master Thesis: "Relationship between brake noises and friction coefficients"
- Hardware: HEAD Acoustics, brake noise data logger (Brake Observer, MoBSi ...). Tools: HEAD Artemis, Vibrant MEscope, LMS Test.Lab, Polytec PSV

NVH Engineer. Vibration and acoustics of engine and vehicle   *Valladolid, Spain*

Renault España SA   *Apr 2011 – Dec 2011*

- Planning and construction of the entire measuring chain and measurements. Carrying out measurements on the test bench and the test track. Identification and localization of noise sources. Transfer path analysis of engine noise. Creation of specifications
- Hardware: gauges (accelerometers and pressure gauges, microphones), analog-to-digital converters, elec-

tronic amplifiers, front-end LMS Scadas. Tools: LMS Test.Lab, MATLAB, Simulink, Excel, DDT2000 (Measurement Calibration and Diagnostic Software, such as INCA)

Publications

Milky Way and Andromeda analogs from the TNG50 simulation	Dec 2024
A. Pillepich, **_D. Sotillo-Ramos_**, et al. doi.org/10.1093/mnras/stae2165 ↗	
On the likelihoods of finding very metal-poor (and old) stars in the Milky Way's disc, bulge, and halo	Oct 2023
D. Sotillo-Ramos, et al. doi.org/10.1093/mnrasl/slad103 ↗	
Disc flaring with TNG50: diversity across Milky Way and M31 analogues	Aug 2023
D. Sotillo-Ramos, et al. doi.org/10.1093/mnras/stad1485 ↗	
The merger and assembly histories of Milky Way- and M31-like galaxies with TNG50: disk survival through mergers	Nov 2022
D. Sotillo-Ramos, et al. doi.org/10.1093/mnras/stac2586 ↗	
Galaxy and mass assembly (GAMA): The environmental impact on SFR and metallicity in galaxy groups	Dec 2021
D. Sotillo-Ramos, et al. doi.org/10.1093/mnras/stab2641 ↗	

Conferences and talks

Stellar spectroscopy and stellar populations group at MPIA. Heidelberg, Germany	Jul 2023
Linking the Galactic and the Extragalactic. Wollongong, Australia	Dec 2022
Lund Galaxy Formation group. Lund, Sweden (remote)	Nov 2022
Ken Freeman at 80 meeting. Perth, Australia	Sep 2022
Lars Hernquist Galaxy theory group. Harvard U., Cambridge, USA (remote)	Apr 2022
IAU Symposium 362 on computational astrophysics (virtual)	Nov 2021
European Week of Astronomy and Space Science (virtual)	Jul 2021
Computational Stellar Dynamics Group. Heidelberg University, Germany	Jun 2021
SFB881 The Milky Way System group. Heidelberg University, Germany	May 2021
Gaia Workshop. Heidelberg University, Germany	Feb 2021
Meeting of the German Astronomical Society (virtual)	Sep 2020
European Week of Astronomy and Space Science (virtual)	Jul 2020
Meeting of the Spanish Astronomical Society (virtual)	Jul 2020
First Spanish Meeting on Galaxy Clusters, ESAC, Madrid, Spain	Nov 2019
Meeting of the Spanish Astronomical Society. Salamanca, Spain	Jul 2018

Teaching

Introduction to computational physics (teaching assistant for exercises lectures). Master in physics at Heidelberg University. Heidelberg, Germany	Apr - Jul 2022
Cosmology Block Course (teaching assistant for exercises lectures). Master in physics at Heidelberg University. Heidelberg, Germany	Sep 2020

Technologies and skills

Programming languages: Python, R, C++, C, git, SQL, Slurm, MATLAB, Simulink, Maple, Mathematica
Astrophysics software: IRAF, DS9, LePhare, TOPCAT
Engineering software: NVH: LMS Test.Lab, HEAD Artemis, Vibrant MEscope, DDT2000, CAD: CATIAV5, AutoCAD, FEM: COSMOS/M

Languages: Spanish (native), English and German (fluent, B2); Portuguese, Russian and French (basic, A1)