Curriculum vitae

PERSONAL INFORMATION

Noelia Martínez Rey

Av San Sebastian 71 3D, 38005 Santa Cruz de Tenerife (Spain)

695317241

noelia.martinez.rey@gmail.com

Skype noelia.martinez.rey | Google Hangouts noelia.martinez.rey

Sex Female | Date of birth 28/12/1991 | Nationality Spanish

WORK EXPERIENCE

01/10/2016–30/09/2019

Astrophysics Instrumentation Predoctoral position

Instituto de Astrofísica de Canarias (IAC), Tenerife (Spain)

Expected PhD defense date: September 2019

Referees:

- Luis Fernando Rodríguez Ramos (Supervisor, IAC)
- Domenico Bonaccini Calia (Collaborator, ESO)

01/04/2016–01/10/2016

Electronics engineer

Fundación General Universidad La Laguna (FGULL), Tenerife (Spain)

- Collaboration with the European Space Agency in a project within the Technology Research Program (TRP).

- Viability study about integrating the plenoptic camera as a sensor in a space navigation system.

- Integration and verification of commercial plenoptic cameras.

- System architecture design (hardware) of a space navigation instrument.

- Calibration procedure and test plan design of the navigator prototype.

Referees:

- José Manuel Rodríguez Ramos (Supervisor, Wooptix)

01/05/2015–10/10/2015

Electronics engineer

Instituto de Astrofísica de Canarias (IAC), Tenerife (Spain)

- Electrical and electronic design of the Adaptive Optics system operation and control for GTC (Gran Telescopio Canarias) telescope, GTCAO project.

- Preliminary tests to verify the proper operation of the main electronic components within the GTCAO electronic and control system.

- Subcontracting of the GTCAO electronics manufacture. Reviews of execution process and final commissioning.

- Assemblies and tests in IAC AIV Clean Room.

Referees:

- Luis Fernando Rodríguez Ramos (Supervisor, IAC)

01/09/2014–01/05/2015

Electronics Engineer. Young Graduate Trainee

European Space Agency (ESA), Noordwijk (Netherlands)

- Development of detector characterization facility: design decisions regarding hardware and software.

- Characterization of several light sources using a silicon photodiode (beam stability, output uniformity and noise, response homogeneity).

- Development of Python libraries to communicate and control all the instrumentation in the setup (laser controller, light source controller, detectors readout, ...).

- E2v CMOS Camera characterization and test plan development, using Matlab and Labview as software tools.

Referees:

- Zoran Sodnik (Supervisor, ESA)

01/07/2013–30/09/2013

Electronics engineer

Instituto de Astrofísica de Canarias (IAC), Tenerife (Spain)

- Automation of the EMIR instrument vaccum system using PLC by Schneider Electric: software development and implementation (normal operation and failure cases included).

- Touchscreen panel programming to communicate with EMIR PLC.

- Test Plan for the whole automation system: first phase in Electronics Laboratoty and second phase in DTS test cryostat.

EDUCATION AND TRAINING

01/10/2015–30/09/2019

International Phd Thesis in Astrophysics

University of La Laguna (ULL), San Cristóbal de La Laguna (Spain)

TOPIC: Adaptive Optics system for optical feeder links

01/10/2013–01/07/2014

Industrial Engineering, Electronics

University of Leon, León (Spain)

01/10/2009–30/09/2012

Industrial Technical Engineering, Chemical Speciality

University of Santiago de Compostela, Lugo (Spain)

PERSONAL SKILLS

Mother tongue(s) Spanish, Galician

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
	Advanced Level Certificate (School of Languages) TOEFL Certificate				
German	B1	B1	B1	B1	B1
	Intermediate Level Certificate B1 (School of Languages)				
French	B1	B1	B1	B1	B1
	Intermediate Level Certificate B1 (School of Languages)				

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills

Ability to work in teams and to cope with difficult situations.

Eloquence and public speech ability.

Flair for the written word and linguistic skills, withthe recognition of prestigious organisations and experts in the field.

Travelling and moving disposition. Quick adapt to changes, new places and multicultural environment.

Organisational / managerial skills

Good team-leading. Aptitude for managing work interdisciplinary teams and research groups.

- Supervisor of student internship: student Cristian Féliz Martín Pérez (Electronics Engineering Degree); period February-March 2019.

- Supervisor of Summer Intership: student Sonia Victoria Vega Quinta (Electronics Engineering Degree); period: June-September 2018.

- Co-tutor of Master final project "Sistemas de simulación y control DARC/DASP aplicado a LGS y uplinks": student Julio Daniel Pérez Cabrera (Industrial Engineering Master Degree); period: academic year 2017/2018.

Job-related skills

Technical Training:

Training Stay at Advance Instrumentation and Technology Centre (AITC), Australian National University (ANU) for the integration of the **Laser Guide Star Facility** and the **Adaptive Optics system for Pushing and Tracking**. Canberra (Australia). September - December 2018.

Specialization course "**17th Annual International Summer School on Adaptive Optics**". Center for Adaptive Optics, University of California. Santa Cruz (USA). August 2017.

Training Stay at Laboratoire d'Astrophysique de Marseille (LAM) about **Object-Oriented Matlab Adaptive Optics Simulator**. Marseille (France). May 2017.

Specialization course "**XXVIII Canary Islands Winter School of Astrophysics. Solar System Exploration**". Instituto de Astrofísica de Canarias (IAC). Tenerife (Spain). November 2016.

Specialization course "Planet and Asteroid Natural Scene Generation Utility (PANGU) Tool Enhancement". Space Technology Centre, University of Dundee. European Space research and Technology Centre (ESTEC). Noordwijk (The Netherlands). May 2016.

Specialization course "Microwave". Instituto de Astrofísica de Canarias (IAC). Tenerife (Spain). September 2015.

Specialization course "Introduction to CCD & CMOS Imaging Technology". E2V Technologies. European Space research and Technology Centre (ESTEC). Noordwijk (The Netherlands). February 2015.

Specialization course "Introduction to Spacecraft Systems Engineering". University of SouthHampton. European Space and Research Technology Centre (ESTEC). Noordwijk (The Netherlands). October 2014

Specialization course "Image Processing. Application to space optical images". Airbus Defence & Space. European Space and Research Technology Centre (ESTEC). Noordwijk (The Netherlands). October 2014

Specialization course "Gases Basic Risks. Nitrogen Risks. Nitrogen Transfer with self-pressurisable vessels. Air Liquide."Instituto de Astrofísica de Canarias (IAC). Tenerife (Spain). September 2013.

Specialization course "Introduction to ANSYS Mechanical and Heat Transfer". Instituto de Astrofísica de Canarias (IAC). Tenerife (Spain). July 2013.

Specialization course "Artificial Intelligence: Science, Tecnology, Fiction or Marketing?". Superior Technical College of Engineering. University of Santiago de Compostela. Santiago de Compostela (Spain). July 2010.

Language Training:

Language immersion course in English. Isaac Peral School. International University Menéndez Pelayo. Madrid (Spain). September 2011.

German intensive course "Deutsch als Fremdsprache". Akademie Germanica. Frankfurt am Main (Germany). August 2010.

Language immersion course in English. University of Exeter. Exeter (England).Summer 2007

Digital skills

Autodesk AutoCAD. Advanced User Level

ALTIUM Designer. User Level

ANSYS Mechanical. User Level

ANSYS Térmico. User Level

AspenTech, Aspen HYSYS. User Level

CALENER-GT. User Level

CYPECAD, Nuevo Metal 3D. User Level

EPLAN electric. User Level

Labview. User Level

Matlab. Expert Level

OrCAD, Pspice Schematics. User Level

Python. Expert Level

Schneider Electric, SISCet. User Level

Schneider Electric, Unity Pro. Professional Level

Schneider Electric, Vijeo Designer. Expert Level

Word, Excel, PowerPoint, Web and Mail. Professional Level

Zemax OpticsStudio. Professional Level.

ADDITIONAL INFORMATION

Publications

- Martínez, N., Rodríguez Ramos, L.F., Zodnik, S., "**Uplink Wavefront Corrector System: On-sky performance validation**". Adaptive Optics for Extremely Large Telescopes (AO4ELT6) Conference. 9-15 June 2019. Quebec (Canada). Pending.
- Rodríguez Ramos, L.F., Martínez, N., Alonso, A., Castro Almazán, J., García Lorenzo, B., "**Sodium layer density anisotropies as a reference for tip-tilt measurement in laser guide stars** ". Adaptive Optics for Extremely Large Telescopes (AO4ELT6) Conference. 9-15 June 2019. Quebec (Canada). Pending.
- Bonaccini Calia, D., Hackenberg, W., Kellerer, A., Leveque, S., Osborne, J., Townson, M., Basden, A., Morris, T., Centrone, M., Speziali, R., Di Paola, A., Pinna, E., Puglisi, A., Martinez N., Rodriguez Ramos, L.F., Reyes, M., Reeves, A., Barrios, R., Mata Calvo, R., Alaluf, D., Perdigues Armengol, J.M., "**CaNaPy: Demonstrator for LGS-AO technologies at visible wavelengths with pyramid WFS, pulsed laser and uplink beam correction**". Adaptive Optics for Extremely Large Telescopes (AO4ELT6) Conference. 9-15 June 2019. Quebec (Canada). Pending.
- Bonaccini Calia, D., Hackenberg, W., Kellerer, A., Leveque, S., Osborne, J., Townson, M., Basden, A., Morris, T., Centrone, M., Speziali, R., Di Paola, A., Pinna, E., Puglisi, A., Martinez N., Rodriguez Ramos, L.F., Reyes, M., Reeves, A., Barrios, R., Mata Calvo, R., Alaluf, D., Perdigues Armengol, J.M., "**Experiments to recover the uplink and downlink atmospherically induced tip-tilt from the laser guide star**". Adaptive Optics for Extremely Large Telescopes (AO4ELT6) Conference. 9-15 June 2019. Quebec (Canada). Pending.
- D'Orgeville, C., Travouillon, T., Grosse, D., Lingham, M., Bennet, F., Webb, J., Korkiakoski, V., Copeland, M., Gers, L., Galla, A., Hart, J., Price, I., Brodrick, D., Thorn, E., Martínez, N., Smith, C., Gao, Y., Wang, Y., Blundell, M., Chan, A., Gray, A., Fetzer, G., Mason, J., "**Debris collision mitigation from the ground using Laser Guide Star Adaptive Optics at Mount Stromlo Observatory: results from the first artificial star ever created in Australian skies**." 17th IAA SYMPOSIUM ON SPACE DEBRIS: Mitigation - Tools, Techniques and Challenges. 2019. Pending.
- Martínez, N., Rodríguez-Ramos, L. F., Sodnik, Z. "**Toward the uplink correction: application of adaptive optics techniques on free-space optical communications through the atmosphere**," Opt. Eng. 57(7) 076106 (28 July 2018).
- Martínez, N., Rodríguez Ramos, L. F., "**Solar MCAO with a single sensor: simulating tomographic reconstruction with the plenoptic camera**," Proc. SPIE 10703, Adaptive Optics Systems VI, 107035G (11 July 2018);
- Martínez, N., Rodríguez Ramos, L. F, Sodnik, Z., "**Uplink correction demonstrator: test bench and experimental results**," Proc. SPIE 10703, Adaptive Optics Systems VI, 1070365 (11 July 2018);
- Hernández Delgado, A., Martínez Rey, N., Philipp Lüke, J., Marichal Hernández, J. G., Rodríguez Ramos, J.M., Sanchez Gestido, M., Bullock, M. "**Using a plenoptic camera for vision based navigation in an Active Debris Removal scenario**". Clean Space Industrial days. 24 – 26 October 2017 ESTEC. The Netherlands.

- Martínez, N., Rodríguez Ramos, L.F., Sodnik, Z. "**Simulating the performance of adaptive optics techniques on FSO communications through the atmosphere**". Proceedings Volume 10408, Laser Communication and Propagation through the Atmosphere and Oceans VI; 1040808 (2017); doi: 10.1117/12.2273692.
- Martínez, N., Rodríguez Ramos, L.F., Alonso, A., Sodnik, Z. "**Performance assessment of Adaptive Optics techniques on FSO communications through the atmosphere**". Adaptive Optics for Extremely Large Telescopes (AO4ELT5) Conference. 25-30 June 2017. Tenerife (Spain).
- Martínez, N., Rodríguez Ramos, L.F., Montoya, L.M, Montilla, I., Collados, M. "**The Plenoptic Camera as Wavefront Sensor for the VTT Solar Telescope**". Adaptive Optics for Extremely Large Telescopes (AO4ELT5) Conference. 25-30 June 2017. Tenerife (Spain).
- Hernández Delgado, A., Martínez Rey, N., Philipp Lüke, J., Rodríguez Ramos, J.M., Sanchez Gestido, M., Bullock, M. "**On the use of plenoptic imaging technology for 3d vision based relative navigation in space**". 10th International ESA Conference on Guidance, Navigation & Control Systems. May 29 - June 2 2017, Salzburg, Austria
- Núñez Cagigal, M., Tubio Araujo, O., Vilela, R., Martínez Rey, N., López-Ruiz, J. C., Rodríguez Ramos, L.F., Martín Díaz, C. "**GTC adaptive optics hardware electronics**". Proc. SPIE 9909, Adaptive Optics Systems V, 990935 (27 July 2016).
- Fernández Izquierdo, P., Núñez Cagigal, M., Barreto Rodríguez, R., Martínez Rey, N., Santana Tschudi, S., Barreto Cabrera, M., Patrón Recio, J., Garzón López, F. **"Automatisms in EMIR instrument to improve operation, safety and maintenance"**. Ground-based and Airborne Instrumentation for Astronomy V, Proc. of SPIE Vol. 9147, 914774M. SPIE 2014.

Conferences

- Participation Talk in the **13th Annual Workshop on Laser Technology and Systems for Adaptive Optics**, Quebec (Canada), 7-8 June 2019. Pending of Approval.
- Participation Talk in the **Durham Workshop Week**, Durham (UK), 19-23 March 2018.
- Participation Talk in the **SPIE Optical Engineering + Applications**, San Diego (USA), 6-10 August 2017
- Participation Talk in the **12th Annual Workshop on Laser Technology and Systems for Astronomical Adaptive Optic**s, Tenerife (Spain), 23-24 June 2017.
- Participation Talk in the **Real-Time Control for Adaptive Optics Workshop 2016**, Paris, 2-19 December 2016.
- Seminar participation (03/03/2015): **Data Analytics with MATLAB in a Big Data World**, Rotterdam, 3 March.