

Personal data:

First/Last name: **Francisco Andres / Iglesias**
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Education:

2012-Present: *PhD Researcher.* Max Planck Institute for Solar System Research.
Thesis Topic: “High-resolution and high-precision imaging solar polarimetry with the Fast Solar Polarimeter”

2004-2012: *Dipl.-Ing. in Electronics.* Universidad Tecnológica Nacional – Facultad Regional Mendoza (UTN-FRM). Average grade: 8.52/10
Diploma thesis: Implementation of a fast Kalman Filter core in FPGA

2004-2010: *Electronics Technician.* UTN-FRM. Average grade: 8.50/10

1998-2003: *Mechanical Technician.* Technical institute ENET N°5. Best grade of the prom.

Selected courses:

2015: *Solar System Science*, MPS, Germany, 2 semesters
2015: *Space Weather, Effects and Applications*, Uni. Göttingen, Germany, 1 semester
2014: *International School on astronomical instrumentation, ESO*, Chile, 2 weeks
2014: *Spectropolarimetry*, MPS, Germany, 1 week
2014: *Polarimetric Techniques and Technology*, LC, Netherlands, 1 week
2014: *Data Analysis in Astrophysics*, Uni. Göttingen, Germany, 1 week
2013: *Introduction to Solar Physics*, MPS, Germany, 1 week
2013: *Stellar formation and evolution*, Uni. Göttingen, Germany, 2 weeks
2013: *International School on Astrophysical Polarimetry*, France, 5 days
2011: *Course of Mathematics teaching*. UTN-FRM, Argentina. 60 hours.
2009-2010: *Course of university tutoring*. UTN-FRM, Argentina. 60 hours.
2008: *4th El Leoncito School on Solar Physics*, CASLEO and ULP, Argentina. 5 days.
2008: *Applied integral transforms*. UTN-FRM, Argentina. 12 hours.
2007: *Postgrad course in scientific modeling*. UTN-FRM, Argentina. 60 hours.
2007: *The mathematical thinking*. UTN-FRM, Argentina. 12 hours.
2005: *Fractional calculus applied to control systems*. UTN-FRM, Argentina. 12 hours.
2002-2003: *Maintenance and reparation of PCs*. Newton schools, Argentina. 1 year.
2001: *AutoCAD 2D y 3D*. Technical institute ENET N°5, Argentina. 30 hours.
2000: *Digital image and video edition*. Foundation Eureka, Argentina. 6 months.

Software:

Windows / Linux / Office / Latex / C / Assembler / VHDL / IDL / MATLAB / Mathematica / LabVIEW
/ Photoshop / After FX / Dreamweaver / 3D Studio

Research and teaching experience:

2012-present: *PhD researcher* “High-resolution and high-precision imaging solar polarimetry with the Fast Solar Polarimeter”. Max Planck Institute for Solar System Research. Germany.

- Scientific instrumentation development.
- High precision solar spectropolarimetry

2011-2012: *Undergraduate researcher*. “Hardware description of a Kalman filter core”. Group of reconfigurable logic (GLR) in UTN-FRM

- Adaptive least square filtering.
- Finite arithmetic filters.
- Hardware description in FPGA systems.

2009-2012: *University tutor*. Subject: Signals and Systems analysis. UTN-FRM

2008-2010: *Undergraduate researcher*. “Improvements in space weather forecasting through the study of coronal mass ejections kinematic”.

Group for atmospheric and environmental studies (GEAA) in UTN-FRM

- Coronal mass ejections (CMEs) tracking through Type II radio emissions
- Statistical analysis of Space born instruments data (Wind/WAVES, SOHO/LASCO, ACE) in IDL
- Fitting of CMEs kinematic propagation models in IDL

2007-2008: *Undergraduate researcher*. Laboratory of studies in communication, spectra and broadcasting (LECER) in UTN-FRM

- Field measurements and estimation of power density for non-ionizing radiations.
- Production of normalized reports for regulatory entities.

2006-2007: *Undergraduate teaching assistant*. Subject: Signals and Systems analysis. UTN-FRM

Scholarships:

2012-2016: *PhD*. IMPRS on Solar System Science. Max Planck Society.

2014: *Summer School*. Astronomical instrumentation. Santander Bank.

2013: *Summer School*. Astrophysical Polarimetry. European COST action.

2009-2011: *TICS*. Argentinean Secretary of Education

2007-2008: *Telefónica*. Telefónica Argentina

2006-2008: *PNBU*. Argentinean Secretary of Education

Prizes and honors:

2013: *Honorable mention in the national contest Pre-Ingeniería for: Implementation of a fast Kalman Filter core in FPGA*. Centre of Argentinean Engineers

2011: *First place in the annual Robotics Competition*. University of Mendoza

2003: *Best grade of the Mechanics prom. 2003*. Technical institute ENET N°5

Publications:

Francisco A. Iglesias, Alex Feller, and Nagaraju Kirshnappa “*Smear correction of highly-variable, frame-transfer-CCD images with application to polarimetry*”. Applied Optics, vol. 54, p. 5970 (2015).

H. Cremades, F. A. Iglesias, O. C. St. Cyr, H. Xie, M. L. Kaiser and N. Gopalswamy “*Low-frequency type II radio detections and coronagraph data to describe and forecast the propagation of 71 CMEs/shocks*”. Solar Physics. (In press)

F. Iglesias and D. Demmaties “*Kalman filter core implementation in FPGA*”. Editorial edUTecNe in: http://www.edutecne.utn.edu.ar/indices/trabajo_final_de_carrera.html (2013).

Proceedings:

A. Feller, F. A. Iglesias, K. Nagaraju, S. K. Solanki, and S. Ihle, “*Fast Solar Polarimeter: Description and first results,*” in “ASP Conference Series”, vol. 498, p. 271 (2014).

Francisco Iglesias, Hebe Cremades, O. Chris St. Cyr, Michael L. Kaiser “*Space weather and CMEs kinematic in the inner corona*”. 5^o Annual meeting of researchers and teachers in engineering, EnIDI 2009. Mendoza, Argentina (2009)

Francisco Iglesias, Hebe Cremades “*CMEs kinematic using multi-wavelength data*”. 11^a Annual meeting of undergraduate researchers, JEI 2010. Mendoza, Argentina (2010).

Selected posters:

The Fast Solar Polarimeter. F. A. Iglesias et. al. Polarimetric Techniques and Technology workshop. Leiden, Netherlands (2014)

Design and performance characterization of the Fast Solar Polarimeter. F. A. Iglesias et. al. SPW7 Kunming, China (2013)

Estimation of the coverage area of a UHF antenna in a complex environment through the software Radio Mobile and validation with in situ measurements. F. A. Iglesias et. al. 6^o EnIDI, Mendoza, Argentina (2011)

Kinematics Profile Modelling of CMEs and forecasting of their associated MHD shock Arrival Time to 1AU. F. A. Iglesias et. al. 53^o Meeting of the AAA. Salta, Argentina. (2010).

Improved CME Kinematics Profile Modelling and Shock Arrival Time Forecasts from Multi-Wavelength Data. F. A. Iglesias et. al. AGU 2010, the Meeting of the Americas. Foz do Iguaçu, Brasil. (2010).