

# MAURICIO J. MORÁN

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## CURRENT POSITION

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**Neutron Physics Department**

*2019 - Present*

**National Atomic Energy Commission (CNEA)**

Postdoctoral researcher

Protect title: “Determination of residual stresses and deformation by diffraction techniques of heat exchanger tubes for steam generators of a nuclear power plant”.

## ACADEMIC FORMATION

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**National University of Córdoba**

*2008 - 2013*

Degree in Chemistry (equivalent to a master's degree)

Thesis title: “Formation of self-assembled layers from cysteamine and selenourea on Au (111)”& “Generation and characterization by mass spectrometry of ionic aggregates of metals and molecules of biological interest”.

**Balseiro Institute - National University of Cuyo**

*2014 - 2019*

PhD in Physics

Thesis title: “Fabrication and structural characterization of Cu-Al-Ni thin films with shape memory”.

## TEACHING EXPERIENCE

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**General analytical chemistry**

*09/2013 - 12/2013*

National University of Córdoba

Teaching assistant

**General and inorganic chemistry**

*09/2014 - 12/2014*

National University of Río Negro

Teaching assistant

**General and inorganic chemistry**

*09/2015 - 12/2015*

National University of Río Negro

Teaching assistant

**Materials characterization - Part I**

*02/2019 - 06/2019*

Balseiro Institute

Teaching assistant

**Texture and residuals stresses in polycrystalline materials**

*11/2019*

Balseiro Institute

Teaching assistant

**Materials characterization - Part I**

*04/2020 - 06/2020*

Balseiro Institute

Teaching assistant

**Materials characterization - Part I**

*02/2021 - 04/2021*

Balseiro Institute

Teaching assistant

## POSTGRADUATE COURSES

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<b>Crystalline structure and defects in solids</b> Balseiro Institute Approved (7)	2014
<b>Transmission electron microscopy</b> Balseiro Institute Approved (8)	2015
<b>Photoelectron spectroscopy in solids: XPS &amp; ARPES</b> Balseiro Institute Approved (9)	2017
<b>Stability and phase transformations</b> Balseiro Institute Approved (9)	2017
<b>Materials characterization - Part I &amp; II</b> Balseiro Institute Approved (9)	2017
<b>School of applied neutron techniques (ETNA)</b> Dan Beninson Institute Approved (9)	2019
<b>Neutron interaction with matter</b> Balseiro Institute Approved (9)	2019
<b>Introduction to the Python language oriented to engineering and physics</b> Balseiro Institute Approved (7)	2020

## REFEREED PUBLICATIONS

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Cometto, F. P., Calderón, C. A., Morán, M., Ruano, G., Ascolani, H., Zampieri, G., Paredes-Olivera, P., Patrino, E. M. Formation, characterization and stability of methyl selenolate monolayers on Au(111): an electrochemical, high resolution photoemission spectroscopy and DFT study. *Langmuir*, **30**, 3754–3763, 2014. <https://doi.org/10.1021/la404996q>

Morán, M. J., Condó, A. M., Soldera, F., Sirena, M., Haberkorn, N. Martensitic transformation in freestanding and supported Cu-Al-Ni thin films obtained at low deposition temperatures. *Materials Letters*, **184**, 177-180, 2016. <https://doi.org/10.1016/j.matlet.2016.08.027>

Morán, M. J., Condó, A. M., Haberkorn, N. Recrystallization and martensitic transformation in nanometric grain size Cu-Al-Ni thin films grown by DC sputtering at room temperature. *Materials Characterization*, **139**, 446- 451, 2018. <https://doi.org/10.1016/j.matchar.2018.03.025>

Morán, M., Condó, A. M., Soldera, F., Sirena, M., Haberkorn, N. Thickness dependence of the martensitic transformation in textures Cu-Al-Ni- thin films grown by sputtering on Si (001). *Materials Today: Proceedings*, **14**, 96-99, 2019. <https://doi.org/10.1016/j.matpr.2019.05.061>

Morán, M., Condó, M. A., Bengio, S., Soldera, F., Sirena, M., Haberkorn, N. Martensitic transformation in freestanding Cu-Al-Ni thin films with micrometric grain size. *Materials Research Express*, **6**, 9, 2019. <https://doi.org/10.1088/2053-1591/ab2fbf>

Morán, M., Condó, M. A., Suárez, S., Soldera, F., Haberkorn, N. Ion implantation inducing two-way shape memory effect in Cu-Al-Ni thin films. *Materials Letters*, **255**, 2019.  
<https://doi.org/10.1016/j.matlet.2019.126569>.

Melone, M., Morán, M., Malamud, F., Malachevsky, M. T., Serquis, A. N. Crystallographic texture study of nano-SiC-doped MgB<sub>2</sub> wires. *IEEE Transactions on Applied Superconductivity*, 2021.  
<https://doi.org/10.1109/TASC.2021.3068088>.

## TECHNICAL REPORTS

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Malamud, F. Morán, M., Bergant, M., Claramonte, S., Vicente Álvarez, M. A., “Characterization of the crystallographic texture of steam generator tubes”, CNEA technical report INT-INN\_03MET-015, 2018.

Morán, M., Moya Riffo, A., Malamud, F., Bergant, M., Vicente Álvarez, M. A. “Procedure for the measurement of residual stresses by the  $\sin^2\psi$  method using the PANalytical Empyrean diffractometer”, CNEA technical report IN-LAHNCT-OO-001, 2020.

Morán, M., Azcárate, J., Moya Riffo, A., Malamud, F., Bergant, M., Vicente Álvarez, M. A., “Verification of residual stresses by the  $\sin^2\psi$  method using the PANalytical Empyrean diffractometer”, CNEA technical report IN-LAHNCT-OO-001, 2020.

## CONFERENCES

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Ruano Sandoval, G., Tosi, E., Morán, M. J., Euti, E., Cometto, F. P., Grizzi, O., Zampieri, G. E. (2013). Characterization of mono and multilayers of atomic Se on Au(111). Poster. 98° National meeting of the Argentine Physics Association (AFA).

Morán, M., Condó, A. M., Haberkorn, N. (2016). Characterization of martensitic transformation in Cu-Al-Ni thin films. Poster. 4th Argentine congress of microscopy.

Morán, M., Condó, A. M., Haberkorn, N. (2016). Characterization of shape memory effect on Cu-Al-Ni thin films grown by sputtering. Poster. XVI Meeting of nanostructured surfaces and materials.

Morán, M., Condó, A. M., Haberkorn, N. (2016). Effect of shape memory on Cu-Al-Ni thin films grown by sputtering at different temperatures. Poster. 16th International congress of metallurgy and materials (SAM-CONAMET).

Morán, M., Condó, A. M., Sirena, M., Haberkorn, N. (2017). Recrystallization and martensitic transformation in Cu-Al-Ni thin films grown at room temperature. Poster. XVII Meeting of nanostructured surfaces and materials.

Morán, M., Condó, A. M., Haberkorn, N. (2018). Influence of microstructure on the resulting martensitic transformation of Cu-Al-Ni thin films. Poster. XXIII Latin American Symposium on Solid State Physics.

Morán, M., Malamud, F., Claramonte, S., Bergant, M., Vicente Álvarez M. A. (2019). Crystalline texture in steam generator tubes. Poster. XV Annual meeting of the Argentine Crystallography Association.

## HUMAN RESOURCES TRAINING

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**Camila Soria**, Nuclear engineering degree student, Dan Beninson Institute. Internship co-director. Project title: Characterization of tensions and crystallographic texture of structural parts for nuclear use. 02/2020.

## TECHNICAL SKILLS

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<b>Transmission electron microscope operator</b>	Philips CM200 UT FEI Tecnai F20 G2
<b>X-ray diffractometer operator</b>	PANalytical Empyrean Philips PW-1700

## PROGRAMMING LANGUAGES

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<b>MATLAB</b>	Beginner
<b>Python</b>	Beginner

## LANGUAGES

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<b>Spanish</b>	Mother tongue
<b>English</b>	B2 level
<b>French</b>	A1 level