Marina Gomes Rachid
PhD Candidate at Leiden Observatory
Leiden, The Netherlands

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EDUCATION

Leiden Observatory – Leiden University 2018 -
PhD in Astrochemistry
Galactic and extragalactic ices with JWST and ALMA
Supervisor: Harold V. J. Linnartz

Universidade do Vale do Paraíba 2016 - 2018
Msc in Physics and Astronomy
Experimental simulation of the effects of energetic particles (ions and electrons) on the surface of icy bodies in the solar system: physicochemical transformation of ices mixtures containing H_2O,CO_2,CH_4 and H_2O,CO_2,CH_4:NH_3
Supervisor: Prof. Dr. Sergio Pilling

Universidade de São Paulo (IFUSP) 2012 - 2015
B.Sc in Physics
Determination of spectral signatures of biomolecules essentials to life
Supervisor: Prof. Dr. Eduardo Janot Pacheco

Universidade de São Paulo (IQSC-USP) 2008 - 2011
B.Sc in Chemistry
Study of the eletronic structure of diatomic systems containing elements from groups 14 and 16
Supervisor: Prof. Dr. Roberto Luiz Andrade Haiduke

RESEARCH INTERNSHIP

Research internship at GANIL (Grand Accélérateur National d'Ions Lourds) , Caen-France (01/10/2017 – 01/04/2018) - Processing of warm ices by low energy ions: Probing the effects of solar wind and low energy magnetospheric ions on frozen solar system bodies, under supervision of Phillipe Boduch.

LEAPS Summer School 2017 (06/06/2017 - 11/08/2017) – ESA/Leiden University- Characterising the largest interstellar molecules under supervision of Dr. Alessandra Candian (Leiden Observatory).

PUBLICATIONS

Rocha, W., **Rachid, M. G**., B. Olsthoorn, E. F. van Dishoeck, M. K. McClure, H. Linnartz (2022). LIDA - The Leiden Ice Database for Astrochemistry, Astronomy & Astrophysics, accepted.

Rachid, M. G, Rocha W., Linnartz, H., (2022). Infrared spectra of complex organic molecules in

astronomically relevant ice mixtures- V. Methyl cyanide (acetonitrile), Astronomy & Astrophysics, in press.

He, J., Diamant, S. J., Wang, S., Yu, H., Rocha, W. R., **Rachid, M.**, & Linnartz, H. (2022). Refractive Index and Extinction Coefficient of Vapor-deposited Water Ice in the UV–vis Range. The Astrophysical Journal, 925(2), 179.

Rachid, M.**G**., Brunken, N., De Boe, D., Fedoseev, G., Boogert, A. C. A., & Linnartz, H. (2021). Infrared spectra of complex organic molecules in astronomically relevant ice mixtures-IV. Methylamine. Astronomy & Astrophysics, 653, A116.

Rachid, M.G.., van Scheltinga, J. T., Koletzki, D., & Linnartz, H. (2020). Infrared spectra of complex organic molecules in astronomically relevant ice mixtures-II. Acetone. Astronomy & Astrophysics, 639, A4.

Candian, A., **Gomes Rachid, M**., MacIsaac, H., Staroverov, V. N., Peeters, E., & Cami, J. (2019). Searching for stable fullerenes in space with computational chemistry. Monthly Notices of the Royal Astronomical Society, 485(1), 1137-1146.

Rachid, M. **G**., Pilling, S., Rocha, W. R. M., Agnihotri, A., Rothard, H., & Boduch, P. (2020). Processing of 72-K water-rich ices by keV and MeV oxygen ions: implications for the Saturnian moon Enceladus. Monthly Notices of the Royal Astronomical Society, 494(2), 2396-2409.

Rachid, M. G., Faquine, K., & Pilling, S. (2017). Destruction of C2H4O2 isomers in ice-phase by X-rays: Implication on the abundance of acetic acid and methyl formate in the interstellar medium. Planetary and Space Science, 149, 83-93.

Terrabuio, L. A., Teodoro, T. Q., **Rachid, M. G**., & Haiduke, R. L. (2013). Systematic theoretical study of non-nuclear electron density maxima in some diatomic molecules. The Journal of Physical Chemistry A, 117(40), 10489-10496.

PRESENTATIONS IN CONFERENCES

"From laboratory to space: JWST observations of interstellar ices" – Oral presentation - European Science Open Forum (ESOF) - Leiden, The Netherlands 2022

"Providing essential laboratory data to detect complex organic molecules in JWST observations of interstellar ices" - Oral presentation - European Astronomical Society (EAS) - Valencia, Spain 2022

"Infrared spectra of methylamine in astronomically relevant ice mixtures" - Poster presentation - European Conference on Labratory Astrophysics (ECLA) - Anacapri, Italy 2021

"Laboratory data in support of JWST observations of interstellar ices" - Poster presentation at Torun Astrophysics, Spectroscopy and Quantum chemistry school (TASQ), Torun - Poland 2019

"Laboratory data in support of JWST observations of interstellar ices" - Poster presentation - IAU Symposium S350— Laboratory Astrophysics: From observations to interpretation - 2019 - Cambridge, UK

"Processing of cometary surface by swift ions", poster presentation in 51st Eslab Symposium "Extreme Habitable Worlds" - 2017 - European Space Agency ESA/ESTEC, The Netherlands . **Awarded with Young Research Awards** .

"Destruction of $C_2H_4O_2$ isomers in ice-phase by X-rays and implication on their abundance in the ISM", Oral presentation in AbGradCon - 2017- Charlottesville - USA. 2017.

"Destruction of $C_2H_4O_2$ isomers in ice-phase by x-rays and implication on their abundance in the ISM", poster presentation at Symposium of Physics and Astronomy of Universidade do Vale do Paraíba (Simfast) - 2017.

"Destruction of $C_2H_4O_2$ isomers in ice-phase by X-rays: Implication on the abundance of acetic acid and methyl formate in the interstellar medium" Poster presentation - IAU Symposium 332: Astrochemistry VII, Through the Cosmos from Galaxies to Planets, Puerto Varas- Chile - 2017

"Processing of Cometary Surfaces by Swift Ions", Poster presentation - ESA Conference "Ices in the Solar System", Madrid - Spain - 2017.

"Peering on biomolecules spectral fingerprints with FRACS", Poster presentation - First Astrobiology School at Observatório Nacional- Rio de Janeiro, Brazil - 2014.

"Semi classical orbits and antidots lattices in Hall systems" - Oral presentation - 22º International symposium of undergraduate research at USP - 2014.

STUDENTS SUPERVISIONS

"Preparing for JWST: the infrared spectrum of frozen glycolaldehyde", Casper Spijker, Thesis for Bachelor of Science in Astronomy, 2021.

"Wavelength dependent refractive index measurements of interstellar ice analogues", Pien Vinke, Thesis for the graduation internship - The Hague University of Applied Sciences , 2020.

"High resolution infrared spectroscopy of interstellar ice analogues", Dani de Boe and Nashanty Brunken, Thesis for Bachelor of Science in Astronomy, 2019.

TEATCHING EXPERIENCE

Teaching assistant of Experimental Physics V – Optics	March 2022 - Jun 2022
Teaching assistant of Experimental Physics VI – Optics & Electromagnetism	April 2021 - Jul 2021
Teaching assistant of Experimental Physics VI – Optics & Electromagnetism	April 2021 - Jul 2021

OTHER ACTIVITIES

Talks to general public at the Observatory of Universidade do Vale do Paraíba, Sao Jose dos Campos - SP, Brazil (2017)