

# LOMBARDI JUAN MANUEL

## PHD STUDENT



### CONTACT



#### Address

Rosario  
Argentina



#### Phone

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#### E-Mail

jmlombardi@live.com

### PERSONAL



#### Date of Birth

31/12/1993



#### Nationality

Argentine

### PLATFORMS



#### GitHub

Link

### LANGUAGES



#### Espanish

Native



#### English

Fluent



#### French

Basic



#### German

Basic (learning)

### EDUCATION

02/2013 - 10/2017

#### Universidad Nacional de Rosario

Degree in Chemistry

Facultad De Ciencias Bioquímicas

Y Farmacéuticas

04/2018 - Ongoing  
expected completion  
date: 09/2023

#### Universidad Nacional de Rosario

Phd. in Physics

Facultad de Ciencias Exactas, ingeniería  
y agrimensura

Topic: Theoretical study of electronic properties  
and reactivity of SAMs, MONCs and organic  
molecules on metal surfaces.

Supervisor: Dr. Paula Natalia Abufager

Co-Supervisor: Dr. Heriberto Fabio Busnengo

### PUBLICATIONS

2023

#### Structure and stability of metallo-porphyrin networks on Au(111)

J. M. Lombardi, D. Grumelli, R. Gutzler,

H. F. Busnengo y P. Abufager.

J. Phys. Chem. C 2023, 127, 13, 6569–6577

2020

#### Enhancing Hydrogen Evolution Activity of Au(111) in Alkaline Media Through Molecular Engineering of a 2D Polymer

P. Alexa, J. M. Lombardi, P. Abufager,

H. F. Busnengo, D. Grumelli, V. S. Vyas, F. Haase,

B Lotsch, R. Gutzler, K. Kern

Angewandte Chemie 59 8411-8415

2020

#### Three-way calibration using PARAFAC and MCR-ALS with previous synchronization of second-order chromatographic data through a new functional alignment of pure vectors for the quantification in the presence of retention time shifts in peak position and shape

S.Mazivila, J.M.Lombardi, R.Páscoa, S.Bortolato,  
J.Leitão, J.Silva

Analytica Chimica Acta. 1146. 98-108

2018

#### Functional data analysis, a new approach to aligning three-way liquid chromatographic with fluorescence detection data.

J.M.Lombardia, S.A.Bortolato,

Microchemical Journal 142, 219-228

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### IN PROGRESS ARTICLES

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- In progress **Catalysis of 2D metal-organic frameworks: porphyrins on Au(111)**  
J.M. Lombardi, D.Grumelli, R.Gutzler, H.F.Busnengo y P.Abufager
- In progress **Oxygen Reduction Reaction on gold-supported FePC and CoPC 2D networks: effect of solvent co-deposited molecules**  
J. M. Lombardi, P. Abufager, H. F. Busnengo and D. Grumelli
- In progress **Functional data analysis, a comprehensive framework for processing non-quadrilinear and low-selective data provided by four-way liquid chromatography analysis**  
M.Alcaraz, J.M. Lombardi, S.Bortolato

### WORK EXPERIENCE

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- 2022 - 2023 **UNIVERSIDAD NACIONAL DE ROSARIO (UNR)**  
Teacher  
Area: Physics  
Department: Physical Chemistry  
Facultad de Ciencias Bioquímicas y Farmacéuticas
- 2018 - 2022 **UNIVERSIDAD NACIONAL DE ROSARIO (UNR)**  
Senior Teaching Assistant  
Area: Physics  
Department: Physical Chemistry  
Facultad de Ciencias Bioquímicas y Farmacéuticas
- 2016 - 2018 **UNIVERSIDAD NACIONAL DE ROSARIO (UNR)**  
Junior Teaching Assistant  
Area: Physics  
Department: Physical Chemistry  
Facultad de Ciencias Bioquímicas y Farmacéuticas
- 2015 - 2017 **UNIVERSIDAD NACIONAL DE ROSARIO (UNR)**  
Junior Teaching Assistant  
Department: Organic Chemistry  
Facultad de Ciencias Bioquímicas y Farmacéuticas

### CONTRIBUTIONS PRESENTED AT INTERNATIONAL SCIENTIFIC AND TECHNOLOGICAL MEETINGS

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- 2022 **Reaction of 2D metal-organic frameworks: metal porphyrins on Au(111)**  
J.M. Lombardi, D. Grumelli, R. Gutzler, K. Kern, H.F. Busnengo, P. Abufager.  
Photo and ElectroCatalysis at the Atomic Scale (PECAS 2022), 20-23 Junio de 2022.  
San Sebastián, España. Comunicación oral
- 2020 **Catalytic properties toward the Oxygen Reduction Reaction of 2D metal-organic frameworks: metalloporphyrins on Au(111)**  
J. M. Lombardi\*, D. Grumelli, R.Gutzler, K. Kern, H. F. Busnengo and P. Abufager,  
CMD-2020-GEFES. Condensed Matter Divisions of the Spanish Royal Physics Society (RSEF-GEFES) and of the European Physical Society (EPS-CMD).  
31st August-4th September.

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- 2020 **Structure and electrocatalytic activity toward ORR of metallo-porphyrin networks**  
J. M. Lombardi, D. Grumelli, Gutzler, K. Kern, H.F. Busnengo, P.N. Abufager  
2020 Express Conference on the Physics of materials and its application in Energy and environment  
3th August - 6th August
- 2019 **Structure and catalytic activity of metalloporphyrin networks**  
J. M. Lombardi, D. Grumelli, R.Gutzler, K. Kern, H. F. Busnengo and P. Abufager  
Gordon Research Conference on Dynamics at Surfaces (GRC)  
28 de julio al 2 de Agosto, Newport, RI United States
- 2019 **Structure and catalytic activity of metalloporphyrin networks**  
J. M. Lombardi, D. Grumelli, R.Gutzler, K. Kern, H. F. Busnengo and P. Abufager  
Gordon Research Seminar on Dynamics at Surfaces (GRS)  
27-28 de Julio, Newport, RI United States
- 2018 **On-surface transmetalation of metalloporphyrins self-assembled monolayers**  
J. M. Lombardi, D. Hötger, P. Abufager, C. Morchutt, P. Alexa, D. Grumelli, J.Dreiser, S. Stepanow,  
H. F. Busnengo, M. Etzkorn, R.Gutzler and K.Kern  
VI San Luis Conference on Surfaces, Interfaces and Catalysis, Santa Fe (Argentina), June, 2018

## CONTRIBUTIONS PRESENTED AT ARGENTINIAN SCIENTIFIC AND TECHNOLOGICAL MEETINGS

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### Reacción de Reducción de Oxígeno en redes 2D de FePC/Au(111): efecto de moléculas de solvente co-depositadas.

J.M. Lombardi, H.F. Busnengo, P.Abufager, D.Grumelli  
NANO 2022, Río Cuarto, 9-11 Agosto 2022

### Propiedades catalíticas frente a la Reacción de Reducción de Oxígeno de estructuras metal-orgánicas bidimensionales: porfirinas metálicas en Au(111)

J.M. Lombardi, H.F. Busnengo, D.Grumelli, P.Abufager  
NANO 2022, Río Cuarto, 9-11 August 2022

### Award for Best e-Poster Presentation

### Propiedades catalíticas frente a la Reacción de Reducción de Oxígeno de estructuras metal-orgánicas bidimensionales: porfirinas metálicas en Au(111).

J.M.Lombardi, H.F.Busnengo, D.Grumelli, P.Abufager.  
IX Encuentro de Física y Química de Superficies y I Encuentro de Biología de Superficies,  
26-28 octubre 2022, Santiago del Estero. Semi-plenary Conference

### Estructura y actividad catalítica de redes de metaloporfirinas

J. M. Lombardi, D. Grumelli, Gutzler, K. Kern, H.F. Busnengo, P.N. Abufager.  
NANO 2019: XIX Encuentro de superficies y materiales  
nanoestructurados, 5-7 June 2019, BsAs, Argentina

### Expositores XIII Jornada de Ciencia y Tecnología.

Luque, E.; Frattini, A.; Oliveros, M.; Batista da Silva, M. Lombardi J. M.  
(2019)

### Construcción de equipamiento de bajo costo para el Laboratorio de Física de la FCByF de la UNR.

M.Oliveros, M.Batista de Silva, J.M.Lombardi, E.Luque, A.Frattini.  
VI Jornadas de Física Aplicada a las Ciencias Biomédicas Rodolfo J. Rasia. 2019

# LOMBARDI JUAN MANUEL

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**Restauracion de la multilinealidad en datos cromatograficos median un algoritmo basado en análisis funcional de datos.**

J.M.Lombardi, M.Alcaraza, M.Montemurrob, S.A.Bortolato.

10° congreso de química analítica, (2019)

**On-surface transmetalation of metalloporphyrins self-assembled monolayers.**

J.M.Lombardi, D.Hötger, P.Abufager, C.Morchutt, P.Alexa, D.Grumelli, J.Dreiser, S.Stepanow, H.F.Busnengo, M.Etzkorn, R.Gutzler and K.Kern.

VI San Luis Conference on Surfaces, Interfaces and Catalysis, 2018, Santa Fe, Argentina

**Cascada de clasificadores para la deteccion y cuantificacion de parasitos en celulas infectadas con T.cruzi.**

J.M. Lombardi.

Workshop on Scientific Programming Techniques, February 26th to March 9th, 2018,

Universidad nacional de Quilmes (UNL). <https://wtpc.github.io/>

**Desarrollo de un nuevo algoritmo basado en análisis funcional para restaurar la multilinealidad en datos cromatográficos.**

J.M.Lombardi, S.Bortolato.

9th Analytical Chemistry Congress, November 7th to 10th, 2017, Rio Cuarto

**FDA on chemometrics. VIII Workshop Wavelets and Information Theory.**

J. M. Lombardi, S.Bortolato.

9th-11th August 2016, Universidad Nacional de la Plata(UNLP)

## RECENT AWARDS

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2022 **Best Flash Poster selected by the Scientific Committee of NANO XX.**

2021 **BIO Hackathon 2nd place**

Córdoba-Santa Fe, October 14th and 16th, 2021

2017 **Nasa Space Apps Challenge - Winner**

Category: best data analysis

## SKILLS

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**Programming Skills (Most Relevant):**

Python, Matlab, C, C++, Java, openGL, R, Fortran, Cuda

Data science, Machine learning, Data mining

**Libraries (Most Relevant):**

Numpy, Pandas, Numba, openCV, openGL, modernGL, pyopenCL, TensorFlow, Theano,

Keras, Sklearn, AMP, ASE

**Tools (Most Relevant):**

Visual studio, Sublime, Linux, VIM, VMD, Látex, Git, Blender, Photoshop, Illustrator, Microsoft office, libre office, VASP, Gaussian, Hyperchem.