MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIPS 2021

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

NOVA University Lisbon | School of Science and Technology
LAQV-REQUIMTE

RESEARCH GROUP AND URL

MAC – **Materials for Adsorption and Catalysis** group (http://sites.fct.unl.pt/mac)
Integrated in the **Materials for Sustainability and Wellness** larger group in LAQV
(https://laqv.requimte.pt/research/research-groups/113-materials_for_sustainability_and_wellness)

SUPERVISOR (NAME AND E-MAIL)

Inês Alexandra Morgado do Nascimento Matos
Ines.matos@fct.unl.pt

SHORT CV OF THE SUPERVISOR

Inês Matos (Gender: Female)
Inês Matos is graduated in chemical engineering by FCT/NOVA (2001) and completed the PhD in chemical engineering/ catalysis in 2007 at Instituto Superior Técnico (IST) of the University of Lisbon (UL) focused on heterogeneous catalysts for olefin polymerization. Since 2008, Inês Matos is an integrated researcher at LAQV/REQUIMTE research unit, first as a Post-doctoral fellow and since 2015 as an Assistant Researcher. The work developed focus on environmental catalysis and green chemistry, and has been centered in synthesis and characterization of carbon materials and catalysts, and their application in adsorption processes for water treatment as well as in catalytic reactions for the synthesis of biomass derived compounds with high added value. An additional line of research has been related with polymers transformation and recycling.

She is co-author of 50 international peer review publications, 2 book chapters and is member of the team awarded with First prize InovAção from ValorPneu 2018 – project for tire waste valorization.

5 SELECTED PUBLICATIONS

1. E.Pérez-Mayoral, I. Matos, M. Bernardo, M.Ventura, I. Fonseca “Carbon-Based Materials for the Development of Highly Dispersed Metal Catalysts: Towards Highly Performant Catalysts for Fine Chemical Synthesis” Catalysts 2020, 10, 1407; doi:10.3390/catal10121407

2. E. Pérez-Mayoral, I. Matos, M. Bernardo, M. Ventura, I. Fonseca “Carbon-Based Materials for the Development of Highly Dispersed Metal Catalysts: Towards Highly Performant Catalysts for Fine Chemical Synthesis” Catalysts 2020, 10, 1407; doi:10.3390/catal10121407

3. M.G. Ventura, T.Pullert, R. Risso, I.Matos, I. Fonseca, J. M. Vital, “Composite catalytic materials based on k-carrageenan and CaO used on the transesterification of soybean oil for the process of biodiesel obtention” Catalysis Today,2021, https://doi.org/10.1016/j.cattod.2020.11.001

4. M. Nogueira, I. Matos, M. Bernardo, F. Pinto, N.Lapa, E.Surra, I.Fonseca, “Char from spent tire rubber: a potential adsorbent of remazol yellow dye”, artigo publicado no C – Journal of Carbon Research, 2019, 5(4), 76. https://doi.org/10.3390/c5040076

5. A. Coelho, I.M Fonseca, **I. Matos**, M.M. Marques, M.A.N.D.A Lemos, F. Lemos, “Catalytic Degradation of low and high density polyethylene using ethylene polymerization catalysts: Kinetic Studies using simultaneous TG/DSC Analysis” *Applied Catalysis A: General 374, 170-179 (2010*) DOI: 10.1016/j.apcata.2009.12.001

PROJECT TITLE AND SHORT DESCRIPTION

Plastic waste recycling and valorization: PET chemical transformation for biogas production

Pollution caused by plastic is one of the biggest challenges of our time. The excessive production and consumption of plastic has serious consequences for the environment and health. Recently, chemical degradation has emerged as a long-term strategy for the development of recycling processes. However, due to the high quantity produced, it may be useful to look for advanced methods that integrate both chemical and biological recycling, aiming to greater conversion and efficiency.
The objective of this work is the development of new methods for the valorization of plastic waste, particularly polyethylene terephthalate (PET). Two approaches are studied; (1) chemical methods easily applicable on an industrial scale capable of using PET in the production of useful products (recycling), (2) chemical processes targeting the production of useful substrates for posterior biological degradations for biogas production.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

Environment and Geosciences (ENV)