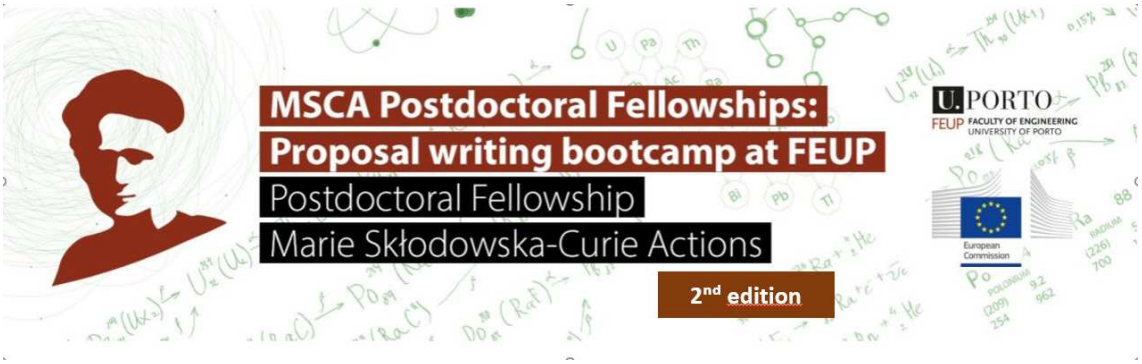


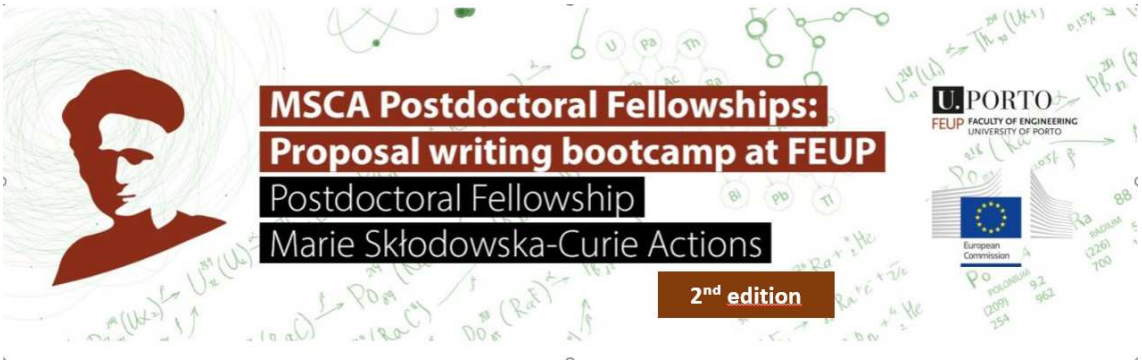
SUPERVISOR INFORMATION	
First and Last name	Helena Soares Alexandre Ferreira
URL of supervisor webpage	https://www.cienciavitae.pt//9217-AB59-AD85 https://www.cienciavitae.pt//0B13-5C0C-24EB
Department	Chemical Engineering
Field(s) of research	Secondary sources metal recycling; Circular Physico-Hydrometallurgy; Adsorption and Separation Processes; Neural networks
PROJECT PROPOSAL	
Title (optional)	3Ss_PGMs Recycling - Simple, Sustainable and Smart reclaiming of PGMs from spent autocatalyts

Brief project description

About 80% of global platinum group metals (PGMs) demand is related to their use in autocatalysts to control vehicle emissions. However, the world's ability to supply PGMs resources has been pressed and, in 2022, PGMs supply was far below their consumption. So, spent autocatalysts constitute an important secondary source of PGMs, which are strategically critical materials and will play a pivotal role in emerging energy-efficient and renewable energy technologies in the near future.

The **3Ss_PGMs Recycling** project aims to recover strategic PGMs from spent automotive catalysts, transforming them into high-grade materials suitable for direct reintegration into supply chains. This is achieved through a simplified and sustainable process based in circular economy principles, with minimal energy and reagent requirements. The approach combines state-of-the-art hydrometallurgical techniques, such as continuous ion-exchange column assays, with artificial intelligence (AI) modelling to optimize PGM separation. The project's goal is to maximize the recovery and purity of each PGM while simultaneously minimizing energy consumption and operational costs.

The supervision team of **3Ss_PGMs Recycling** project is constituted by Dr Helena Soares and Dr Alexandre Ferreira from FEUP. Dr Helena Soares has a robust and long track experience on **URBAN MINE** topic, as detailed in her Ciência Vitae (https://www.cienciavitae.pt//9217-AB59-AD85). Dr Alexandre Ferreira has a large experience on Adsorption and Separation Processes and Artificial Neural Networks, as detailed in his Ciência Vitae (https://www.cienciavitae.pt//0B13-5C0C-24EB).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