

Name of the MSC Fellow: Dr. Simge Tarkuç

Nationality: Cypriot

Host organization: Arçelik

Country of the Host: Turkey

Project Acronym: MAESDOSO

Project start and end date: 01.03.2017-01.03.2019

Type of MSC action, H2020: IF



Your story:

I was born and raised in Cyprus. I studied Chemistry Education as an undergrad at Middle East Technical University in Turkey. I received PhD degree in Chemistry at the same university, studying physical organic chemistry. I moved to the Netherlands to work as a post-doctoral researcher at Delft University of Technology. After 4 years at TU Delft, I went back to Cyprus and became an instructor at Near East University. Then I made a major career transition from academia to industry by joining Arçelik Research and Development Centre, Turkey as a senior scientist.

Professionally, I am motivated to work on a dynamic culture that encourages the innovative application of science to provide leading-edge research and development. It is a great honour for me that the project **Maximize Energy Saving and Deliver Comfort by Innovative Switchable Light Transmittance Technology (MAESDOSO)** developed on this aspect, was awarded in 2017 a Marie Skłodowska-Curie Fellowship.

Project objectives and research field:

MAESDOSO aiming to bring organic electrochromic materials in white goods to contribute to the design and development of eco-friendly, functional and aesthetic products. The use of organic electrochromic materials in white good will change the way that the society interacts with electrochromic technology and maximize the positive impact of this technology on society.

Tell us why your topic is important and/ or how it brings to advancement in your research field:

Competition between inorganic and organic electrochromic materials to fulfil the requirements of the market have been known for many years. Although inorganic materials have been preferred because of their stability and longer life time than organic ones, they do not offer colour variability as much as organic materials do. The evolution of the field of electrochromic organic materials as replacements for inorganic in electrochromic technology has been fuelled by the flexibility in fine tuning of the colour by chemical synthesis and the application of them on flexible, foldable substrate. These features are appealing for wearable and futuristic technologies, and hence serve to revolutionize electrochromic applications. The main goal of MAESDOSO is to develop electrochromic devices for use in domestic ovens to reduce heat losses through the door glass. Better stability at high temperature, faster switching time and better coloration efficiency as outcomes of MAESDOSO will push the trigger to transfer the electrochromic technology in developing devices for household appliances.

What are the benefits of participating in a MSC action?

Marie Skłodowska-Curie IF awarded project MAESDOSO showed that there is a potential to transfer organic electrochromic materials in white goods such as an oven with an electrochromic glass door. Leading the project from synthesizing of organic electrochromic materials to transferring them in the functional prototype support me to develop and improve skills to build and manage a multidisciplinary team including chemist, material scientist and engineers. Also new projects related to this technology will be initiated at Arçelik R&D center after the completion of MAESDOSO under my supervision.

Today, society has met electrochromic technology in commercial buildings, automotive and airplane. These applications focus on energy saving, light management. The successful outcome of MAESDOSO will meet not only essential

white goods market and consumer demands but also bring additional function, aesthetic and user-friendly properties.

Did you encounter any challenges during application/ implementation and did you get any help?

After I obtained my PhD degree in Chemistry, I moved to the Netherlands and worked at Delft University of Technology as a post-doctoral researcher from 2010-2014. Then I decided to shape my professional life in the private company in Turkey. Eligibility to apply MSCA-IF Society and Enterprise panel (SE) encouraged me to have this step. TÜBİTAK with MSCA NCPs in Turkey provided pre-evaluation support for MSCA IF proposal. Thus, I had a chance to improve the quality of my proposal.

Why did you choose a widening country as a Host? What was the reason that convinced you? What is making you professionally happy here?

My academic and research experiences I had while studying in Turkey gave me opportunity to work abroad as a post-doctoral researcher. After working 4 years at TU Delft, I wanted to join an R&D team of a private company that takes an interdisciplinary approach to apply and transfer knowledge from multiple disciplines to design and manufacture products. Since Arçelik supports my research vision to lead my own research plans and establish my own research team to make the transition to independent researcher at the company, I want to be part of it. Up to date, I have been taking part in projects that involve a strong collaboration with different disciplines. Also I have worked at interactive environment to discuss the challenge on the projects and bring the solutions on them together with my colleagues. Arçelik also fosters a dynamic culture that encourages the innovative application of science, engineering and experience to provide leading-edge research and development in areas of home appliances and components. This makes me professionally happy here.

Would you recommend others to apply? What useful advice/ tips can you give them?

Yes, of course I do. MSCA-IF have a great contribution to experienced researchers while shaping their professional life at a university or a company. Carrying out MSCA-IF can have a profound impact on researcher's career. You develop your own research ideas and conduct the project to achieve your goals as an independent researcher. I have encouraged colleagues and friends in research to apply MSCA-IF.