

MSCA Individual Fellowships

H2020 MSCA - IF 2019

Kübra ALTUNTAŞ – PFCsByPlasCat: Perfluorinated Organic Compounds (PFCs) Degradation using Non-Thermal Plasma Enhanced by Boron Doped Graphene Oxide as Catalyst (2020-2022)



Kübra Altuntaş comes from Turkey. She is currently a researcher at the Environmental Engineering Department of Yildiz Technical University, Turkey and a visiting researcher at the Department of Chemical Science of the University of Padova. During her PhD, she studied on nanoparticle applications in the environmental field and, spent research activity in Technische Universität Braunschweig in Germany. She received her PhD degree in Environmental Engineering from Yildiz Technical University, Turkey in 2018.

During her MSCA IF project at the Department of Chemical Science under the supervision of Prof. Cristina Paradisi, she will work on developing a treatment process for Perfluorinated Organic Compounds (PFCs) by Non-Thermal Plasma in combination with boron doped graphene oxide nano photocatalysts.

Anna ARCHETTI – FLAMMES: On-chip metasurface-based neuroimaging platform toward high-throughput drug screening in freely behaving animal (2021-2023)

Anna Archetti, Italian Fellow, completed her MA in Physics at the University of Trento, and in 2019 she obtained her PhD in Photonics at the École polytechnique fédérale de Lausanne (EPFL), defending the thesis “Waveguide platform and methods for superresolution fluorescence microscopy of subcellular structures”. Her work focuses on the development of bio-imaging platforms for high-resolution, large-field-of-view fluorescence microscopy by employing micro-nano fabricated structures and state-of-the-art CMOS sensors.

Her project as MSCA fellow at the Department of Biomedical Sciences of the University of Padova, under the supervision of Prof. Dal Maschio, focuses on realizing a novel on-chip microscope for zebrafish larva neuroimaging, with the long-term goal of drastically improving the in vivo study of brain mechanisms, as well as the screening effectiveness of novel neurological drugs. To achieve this goal, she will develop a metasurface-based and large-area optical sectioning system capable of whole-brain imaging and behaviour tracking in zebrafish larvae – a small and transparent model system potentially in compliance with 3R-policies.

Elisabetta BENAZZI – NITROGEN-LIGHT: Photo(electro)catalytic Nitrogen Fixation (2021-2023)



Elisabetta Benazzi is Italian and obtained her Master Degree in Chemistry at the University of Padova in 2014. Until August 2018, Dr. Benazzi worked in the group of Prof. Bignozzi at University of Ferrara as researcher for the HP-Solar project. This work represents an extension of Dr. Benazzi PhD (carried out at Ferrara University from 2014 to 2017), where Dr. Benazzi developed a new energy storage system, new redox mediators for dye-sensitised solar cells (DSSCs) and characterised molecular devices for solar fuel generation. During the PhD, the Fellow spent five months at Paris Lodron University. From 2018 to 2019, she has worked as associate researcher at Newcastle University, where she developed photocathodes for DSSCs and water splitting based on oxide semiconductors sensitized with organic dyes. In September 2019 she started another post-doctoral contract in Ferrara, working in the field of homogeneous CO₂ reduction.

At the Department of Chemical Science – University of Padova, under the supervision of Prof. Marcella Bonchio and at the California Institute of Technology – Caltech (USA) under the supervision of Prof. Jonas Peters, Elisabetta Benazzi will conduct her MSCA-IF project NITROGEN-LIGHT. The project lies in the panorama of N₂ reduction, but offering a new point of view. It aims to develop a photoelectrolyser to efficiently convert N₂ to ammonia, but exploiting semiconductor surfaces decorated with controlled molecular assemblies of visible-light sensitizers and N₂-activating multi-redox catalysts.

Mauricio CARDENAS RODRIGUEZ – CRIMIPRIM: The relationship between cristae shape and mitochondrial protein import in mitochondrial disease models (2021-2023)



Mauricio Cardenas-Rodríguez is from Mexico. He got a degree in Pharmacological and Biological Chemistry and a Masters in Experimental Biology both from the National Autonomous University in Mexico. Then he went to the University Glasgow in the UK to do a PhD in Molecular, Cell and Systems Biology where he studied the implications of the redox state of the cell in mitochondria biogenesis and found a reducing pathway regulating the import of proteins into the intermembrane space of mitochondria.

During the MSCA fellowship at the Department of Biology under the supervision of Prof. Luca Scorrano, Mauricio aims to study the molecular mechanisms of the role of mitochondrial architecture on the import of proteins into mitochondria, in particular those involved in mitochondrial respiration.

[A mitochondrial story](#)

Alessandro CARRER – OPEN P-CAN: Dissecting the role of mitochondrial dynamics in pancreatic carcinogenesis (2020-2022)



Alessandro Carreri is Italian and graduated and obtained his PhD degree from University of Trieste (Italy) working in the laboratory of Molecular Medicine at the International Center for Genetic Engineering and Biotechnology (ICGEB). At that time, his research focus was on neovessel formation in tumors. Later, he decided to move abroad to study tumor metabolism and joined the University of Pennsylvania, Philadelphia, USA as a postdoc. In the States, Alessandro worked on pancreatic cancer, trying to characterize alterations in cellular metabolism that contribute to oncogenic transformation.

He returns to Italy as an MSCA fellow to study the role of the mitochondrial protein OPA1 in pancreatic cancer initiation and to develop novel strategies to tackle disease onset. His project is based at the Department of Biology under the supervision of Prof. Luca Scorrano.

Olena FEDYUK – RightsLab: Towards Transnational Labour Rights? Temporary Work Agencies and Third Country National Workers in the EU (2021-2024)



Olena Fedyuk is from Ukraine. She has been research fellow at the Center for Policy Studies, Central European University (Budapest) and an academic visitor at the Department of Work, Employment and Organisation at Strathclyde University (Glasgow). She holds a PhD from the department of Sociology and Social Anthropology at CEU. Her dissertation was an ethnography of Ukrainian female migration to Italy and tackled questions of transnational moral economies, distant motherhood and care regimes. Her main academic interests include transnational migration, care-work, labor transformations, gendered employment and migration regimes. Since 2012 Olena directed 2 documentary films; “Road of a migrant” (2015) and “Olha’s Italian Diary” (2020).

Olena will carry out her MSCA IF project at the Department of Philosophy, Sociology, Education and Applied Psychology under the supervision of Prof. Devi Sacchetto. RightsLab project is a prosecution of Olena’s most recent research interest that brings together migration and industrial relations perspectives by exploring the growing field of temporary work agency in employing third country nationals in the EU.

Rodrigo A. GOMILA OLMOS DE A. – FRICTION: Fluid-Rock InteraCTION at hydrothermal conditions during the seismic cycle (2020-2022)



Rodrigo A. Gomila Olmos de A. is from Chile. He obtained his undergraduate Geology degree at the Universidad Católica del Norte in Antofagasta, Chile and his Ph.D. and M.Sc. in Engineering Sciences at the Pontificia Universidad Católica de Chile, in Santiago, Chile. He carried out a Post-doctoral research at the Department of Geosciences, at University of Padova, within the ERC project “”. During his professional and Ph.D. degrees, he studied the conditions of paleo stress, strain and permeability of ancient seismogenic faults, by the aid of classic structural geology tools and X-ray microtomography. He has also work in the industry field as a Geotechnical Geologist and as a consultant on Structural Geology focused in ore exploration.

Rodrigo’s MSCA IF project is carried out at the Department of Geology under the supervision of Prof. Giulio Di Toro. The project aims at assessing the dynamic interaction between hydrothermal fluids and fault-zones in the crust at seismogenic structural levels. This by investigating exhumed ancient seismic fault zones to better understand and quantify the strength, friction properties, and sliding behavior of faults at seismogenic conditions in the continental crust.

Fossil Earthquakes: hurting the scars of a violent Earth

Tomáš KNEDLÍK – MERCURY: Chemical compounds targeting MERCs: identification of their partners in physiological and pathological conditions (2021-2023)



Tomáš Knedlík is from Czech Republic. He studied biochemistry at Charles University in Prague and gained his scientific experience at Institute of Organic Chemistry and Biochemistry in Prague. His scientific interests range from protein targeting and protein identification to mitochondrial biology. During his PhD, he developed polymer-based antibody mimetics (iBodies) that recognize their target proteins by the inhibitors attached to the polymer backbone. In 2019 Tomáš moved to Padova and joined laboratory of Marta Giacomello to investigate the inter-organelle communication.

In his MSCA project, conducted at the Department of Biology under the supervision of Marta Giacomello, Tomáš is focusing on the regulation of mitochondria-endoplasmic reticulum contact sites (MERCs) by small molecules. Using a high-content phenotypic screening and iBodies technology, he is aiming to identify the compounds affecting MERCs structure and their protein partners.

[Looking Closer at Mitochondria – ER Contact Sites \(MERCs\)](#)

Marco MALVESTIO – EcoSF: The Ecology of Italian Science Fiction (2020-2023)



Marco Malvestio, Italian Fellow, obtained a PhD in Comparative Literature at the University of Padua in 2019, and afterwards has been a Post-Doctoral Fellow at the University of Toronto. At the Department of Linguistic and Literary Studies, under the supervision of Prof. Alessandro Metlica, he will conduct the MSCA IF project EcoSF, investigating the prominence and distinctive representation of ecological issues in Italian science fiction (1952-2019). The project, which provides one of the very first extensive academic studies dedicated to this genre in Italy, examines the debate surrounding its cultural status and traces its evolution in relation to Italian history and culture. An ecocritical perspective is adopted, interrogating the relationship between literary imagination and the environment. Through such approach, EcoSF shows how literature is important to generate awareness of ecological issues and explore literary responses to the current ecological crisis. The cognitive estrangement raised by the imaginative effort of science fiction is central to the necessary re-thinking of current cultural and epistemological paradigms based on anthropocentrism, human exceptionalism, and ecophobia.

[EcoSF – The Ecology of Italian Science Fiction](#)

Lorenzo MARCUCCI – Heart Fi-Re: HEART Fine REgulation through mechanosensing in myosin filaments: merging theory and experiments into a multi-scale heart simulator (2021 – 2024)



Lorenzo Marcucci is an Italian Fellow. He graduated in Materials Engineering at University of Ferrara with a thesis on shape-memory alloys characterized by two or more stable configurations in their potential energy. Since then, he has been interested in applying the same theory to muscle mechanics, where myosin motors are characterized by several stable states. He pursued his post doc research in Japan at Osaka University and at the Quantitative Biology Center - RIKEN, and since 2015 at the University of Padova.

For his MSCA IF project, Lorenzo will work at the Department of Biomedical Science under the supervision of Prof. Nazareno Paolucci and at the Institute of Physical and Chemical Research – RIKEN in Japan (Global Fellowship). During his project he will theoretically characterize the recently discovered stable state in myosin motors, the “super-relaxed state”, and its perturbation through intrinsic mechanical feedbacks. He will address the experimental characterization at several level, from molecular motor to the whole heart.

Marta MATERNI – PRODIGI: Digital Lemmatized Edition of Prose 2. Franco-Italian prosification of Benoît de Sainte-Maure's Roman de Troie (2020 -2022)



Marta Materni, Italian, received a Ph.D in Romance Philology from the University of Rome (2012), after a BA and MA in Medieval History. Thanks to a previous Marie Curie IF in France (Grenoble, 2017-2019, DigiFlorimont project), she has developed a strong interest in Digital Humanities, with a focus on textual encoding. Her main interest is the Medieval representation of Antiquity.

In her MSCA IF project, Marta will work at the Department of Linguistic and Literary Studies under the supervision of Prof. Francesca Gambino. The typology of the proposed edition is a digital diplomatic edition allowing the manipulation of the text for the purposes of linguistic analysis. The interest of Prose 2 lies, among other things, in being an original French text written in Italy (Veneto). From the point of view of cultural history, it is a key component of the Italian reception of the Trojan narrative.

Philip MINDERHOUD – InSPiRED: Improving Subsidence PREDictions in Delta systems (2020-2021)



Philip Minderhoud is a Dutch physical geographer and hydrogeologist. It's his ambition to increase our fundamental scientific understanding of sinking deltas around the world, to be able to predict future subsidence and relative sea-level rise, both under natural and human-impacted circumstances and to contribute towards the development of sustainable delta management strategies of deltaic areas. He studies Earth Sciences at Utrecht University in the Netherlands where he also received his PhD in 2019 within the Dutch-Vietnamese Rise and Fall project, in which he studied delta subsidence in the Mekong delta by integrating data and methods from various scientific disciplines, including geology, hydrogeology, geotechnical engineering and remote sensing. Next to his PhD, he worked as a passionate University lecturer at Utrecht and received the Teacher Talent of the Year award at his faculty.

In 2019, he started as a post-doc researcher within the 'Water, Climate and Future Deltas' research focus area of Utrecht University focusing on developing pathways to a sustainable future for subsiding deltas. Next to that he works as researcher at the Deltares research institute. In 2020 he has been awarded a H2020-MSCA-2019 Individual Fellowship. His project InSPiRED focuses on improving our numerical model capabilities to resolve and better understand land subsidence processes and improve subsidence predictions in delta systems with the Po, Mississippi and the Mekong delta as exemplar case studies. This project is carried out under the supervision of Prof. Pietro Teatini at the Department of Civil, Environmental and Architectural Engineering.

[Le lagune sopravvivranno all'innalzamento dei mari?](#)

Mario PASQUATO – RISING: Realistic and Informative Simulations with machine learning



Mario Pasquato is Italian. He received his Ph.D. in Physics from Pisa university in 2010. In Pisa he also attended Scuola Normale Superiore, receiving a BSc. (2004) and MSc. (2006).

As a summer intern in Space Telescope Science institute in Baltimore, MD he developed a strong interest in numerical astronomy, simulating star clusters on a hunt for intermediate-mass black holes. After a brief period in industry and a postdoc in Bologna (Italy) he moved to Yonsei University (Korea) where he spent five years as a fellow, falling in love with machine learning. In 2017 he came back to Padua (Italy) as a MSCA-COFUND fellow at the National Institute of Astrophysics on a mission to bring machine learning techniques to Astronomy.

Mario carries out his project at the Department of Physics and Astronomy under the supervision of Prof. Mapelli, ERC grantee. His MSCA-IF project will revolutionize the way astronomers run and interpret numerical simulations, by establishing tools for measuring simulation realism, optimising numerical experiment design through active learning, and building generative models to bypass simulations altogether. The outgoing phase of his fellowship will be spent at the Université de Montréal, one of the most important centers for deep learning in the world.

Cristina RUBERTI – DELIGHT: DissEcting caLcium signalinG in cHloroplasTs (2021-2023)



Cristina Ruberti is an Italian Fellow. After her PhD in Biochemistry and Biotechnology (University of Padua), Cristina worked at the Biology Department (University of Padua), at the Michigan State University (USA) and at the University of Muenster (Germany) as Post-doctoral Research Associate. As experienced plant biotechnologist, she has been working over the years in elucidating at subcellular level the complex mechanisms involved in plant responses to environmental changes.

In her DELIGHT project as MSCA Fellow at the Biology Department, under the supervision of Prof Ildiko' Szabo', Cristina will be investigating the modulation and integration of the chloroplast signals into intra-cellular metabolic and signalling responses as well as into inter-organellar crosstalk, that orchestrate plant adaptation and tolerance to environmental stresses.

Deepak SINGH – Photo2Bio: Photo-Organocatalytic CO₂ Valorisation into Bioactive Added-Value Molecules (2020-2022)



Deepak Singh grew up in Balrampur, a small town in India, Uttar Pradesh. After completion of MSc. Degree, he enrolled in a Ph.D programme at M. S. University of Baroda with Prof. P. T. Deota on catalysis and total synthesis of cis-anti-cis bistriquinate. After submission of his PhD thesis he joined Prof. Pandey group where his research got new directions on C–H functionalization via visible light photoredox catalysis. After completion of his research associate tenure, he worked as a postdoctoral fellow in group of Prof. Ha at the HUFs, South Korea on Synthesis of chiral aziridine and their application in synthesis of biologically active N-heterocycles.

Deepak's MSCA IF project will be carried out at the Department of Chemical Sciences under the supervision of Prof. Marcella Bonchio. Photo2Bio is about the synergistic asymmetric CO₂ fixation. Deepak's priority is to work hard on photocatalytic small molecule activation and synthesis of bioactive molecules by newly acquired skills in organocatalysis, and enantioselective carbon dioxide fixation and publishing more number of research articles in peer-reviewed scientific journals.