



**POLITECNICO**  
MILANO 1863

## Supervisor Expression of Interest MSCA - Marie Sklodowska Curie Action - (PF) Postdoctoral Fellowship 2021

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Link pagina docente:	<a href="https://giovannivalente.weebly.com/">https://giovannivalente.weebly.com/</a>
Department Name:	Department of Mathematics Francesco Brioschi (DMAT)
Research topic: ( <a href="https://www.polimi.it/en/scientific-research/research-at-the-politecnico/departments/">https://www.polimi.it/en/scientific-research/research-at-the-politecnico/departments/</a> )	<b>Tuning Climate Models: Epistemological Perspectives</b>  • SH4_13 Epistemology, logic, philosophy of science
MSCA-PF Research Area Panels:	<input type="checkbox"/> CHE_Chemistry <input type="checkbox"/> ECO_Economic Sciences <input type="checkbox"/> ENG_Information Science and Engineering <input type="checkbox"/> ENV_Environmental and Geosciences <input type="checkbox"/> LIF_Life Sciences <input type="checkbox"/> MAT_Mathematics <input type="checkbox"/> PHY_Physics <input checked="" type="checkbox"/> SOC_Social Sciences and Humanities
Politecnico di Milano Areas:	<input type="checkbox"/> Cultural Heritage <input type="checkbox"/> Smart Cities <input checked="" type="checkbox"/> Horizon Europe Missions <input type="checkbox"/> Health <input type="checkbox"/> Industry 4.0
Title and brief description of the Department and Research Group (including URL if applicable):	The project will be carried out in the Department of Mathematics, which hosts a growing number of research activities in philosophy of science. There, the successful candidate will also have the opportunity to interact with practicing mathematicians, as well as with experts on science communication based in the laboratory EFFEDIESSE. Moreover, she\he will join the inter-departmental group META ( <a href="http://www.meta.polimi.it/">http://www.meta.polimi.it/</a> ) devoted to philosophy and sociology of science and technology, so as to work in close connection with its international partners, such as the Irvine-London-Munich-PoliMi-Salzburg Network and the IDEA League Ethics Working Group.



**Brief project description:**  
**(max 1 page)**

Simulations of future climate scenarios are one of our main tools for predicting the consequences of climate change on current and future inhabitants of the Earth. Because of the high complexity of the Earth system processes, model calibration or ‘tuning’ proves necessary for the development and testing of computer simulations. Over the past decade, climate scientists have become increasingly aware of the need to make their calibration practices more transparent and communication about their use more effective, so as to improve confidence in the reliability of computer simulations among their peers, policy-makers, and the general public. This calls for the establishment of common methodological standards and the development of a meaningful language for reporting the results of tuning procedures in climate modelling, in line with the recent success of the introduction of a probabilistic framework for expressing uncertainty about climate predictions. Such an outstanding challenge is likely to be the next frontier of climate science methodology and communication for the incoming decade. By acting as a bridge between scientific experts and the general public, philosophers of science can not only enhance assessment of scientific outputs but also contribute to a healthier functioning of our democracies as we implement mitigation and adaptation policies against climate change.

By bringing together the analytical methods of contemporary philosophy of science and the relevant work of practicing scientists and mathematicians, the present research project proposes to deal with epistemological and methodological problems concerning the calibration of climate models, while at the same time tackling the pressing issue of how to effectively transfer the relevant information from scientists to policy makers and to the public writ. For this purpose, when carrying out the project at PoliMi, the successful candidate will interact with the philosophers and sociologists of science and technology operating within the inter-departmental unit of study META, as well as with science scholars based in the Department of Mathematics. In particular, the laboratory EFFEDIESSE devoted to the pedagogy of mathematics and communication of science will provide technical resources to disseminate the results of the research project in the form of public lectures and training courses designed for high-school teachers.