



**POLITECNICO**  
MILANO 1863

## Supervisor Expression of Interest MSCA-IF Marie Sklodowska Curie Action-Individual Fellowship 2020

<b>Supervisor name:</b>	Giovanni Valente
Email address: Link pagina docente:	<a href="mailto:giovanni.valente@polimi.it">giovanni.valente@polimi.it</a> <a href="https://giovannivalente.weebly.com/">https://giovannivalente.weebly.com/</a>
Department Name: 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> )	Department of Mathematics Francesco Brioschi (DMAT) <b>Uncertainty in Environmental Science</b>  • SH4_13 Epistemology, logic, philosophy of science
MSCA-IF 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"/> Territorial Fragilities <input type="checkbox"/> Health <input type="checkbox"/> Industry 4.0
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. The successful candidate will also have the opportunity to interact with practicing mathematicians, dealing with models and statistical data, 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> ), which focuses on 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.



<p><b>Brief project description:</b> <b>(max 1 page)</b></p>	<p>The lively debate on climate change confronts us with pressing problems concerning the interface between science and society. Environmental science has indeed become a subject of public attention, and as such it offers opportunities for humanities scholars to meaningfully contribute to the important conversation. It is widely recognized among the experts that there is an intrinsic uncertainty built into the climate and geological models on which we base our predictions and explanations about environmental phenomena. In fact, due to their great complexity, the physical processes under investigation can be represented by our models only approximately and with the use of probability methods. Furthermore, such uncertainty needs to be factored into the relevant decision-making processes at the public policy level, which in turn has an impact on our society as a whole. There thus arise even outstanding questions about economics and ethics, as well as about the communication of risk to the large public. That requires an inter-disciplinary approach to the problem, in which science scholars can collaborate with philosophers and sociologists.</p> <p>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 investigate the pressing issue how to deal with uncertainty in environmental science from the perspective of multiple fields. Specifically, it focuses on epistemological, methodological and ethical problems concerning how to understand, classify and reduce uncertainty in the construction and application of climate and geological models, as well as how to transfer the relevant information from scientists to policy makers and to the public writ in order to guide rational decisions in face of uncertainty. For this purpose, when carrying out the project at PoliMi, the successful candidate will interact with the philosophers and sociologists of science operating within the inter-departmental unit of study META and with science scholars working on models, statistics and probability 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.</p>
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