2 post-doc positions available on: « Quantum Simulations of 2D Heterostructures »

Location: National Research Council (CNR), Pisa (Tuscany), Italy.
Time frame: Start around March 2019 – 1 year term, renewable up to 3 years

2 post-doc positions are available funded by a recently approved FET-Open project: "Quantum Engineering for Machine Learning" (acronym: QUEFORMAL) within the call: H2020-FETOPEN-01-2018-2019-2020. The topic is Quantum Mechanical (QM) simulations supporting fabrication and engineering of devices combining hetero-structures of 2-dimensional materials (2DMs) into low-voltage field-effect transistors and non-volatile memories.

- Scientific context
  The FET-Open project QUEFORMAL involves 2 theory groups (CNR, Pisa, Italy, and University of Pisa, Italy, coordinator), 2 experimental groups (EPFL, Lausanne, Switzerland, and University of Bundeswehr-München, Germany), and 2 European SMEs (AMO, http://www.amo-gmbh.com/en/, and Quantavis, http://www.quantavis.com/). The final goal of QUEFORMAL is to develop a novel transport technology based on 2D heterostructures. The CNR unit will deal with first-principles atomistic simulations of materials and devices based on 2D lateral and vertical heterostructures. The targets are: (i) to provide QM-derived data on such materials and interfaces to be fed into higher-level models thus allowing predictive simulations of phase transformation and transport phenomena, and ii) to shed light on the atomistic origin of fundamental materials properties to guide materials design.

- Related Publications:

We are looking for 2 motivated early-stage researchers, with interest and knowledge on 2D materials. Salary is 1600-1800€/month (net, depending on qualification). Expertise in density-functional theory (DFT) for structure and electronic band structure prediction and transport simulation (e.g., QuantumEspresso suite of codes) is a pre-requisite.

Applications (including reference persons) should be sent via email to:

Scientific supervisor: Alessandro Fortunelli, CNR, Pisa, Italy
Contact: Alessandro Fortunelli, e-mail: alessandro.fortunelli@cnr.it
CNR-ICCOM, via G. Moruzzi, 1 - 56124 - Pisa - Italy

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2 http://www.researchgate.net/profile/Alessandro_Fortunelli/ http://www.pi.iccom.cnr.it/ThC2-Lab