<p style="text-align:center; color:red">1 PhD position at the University of Milan within the programme
Horizon Europe (HORIZON)
Marie Skłodowska-Curie Actions
Doctoral Networks (DN)</p>

<p style="text-align:center; color:red">HORIZON-MSCA-2022-DN-01-01</p>

The objective of the doctoral network "TIMES" is the modelling of emergent phenomena arising from excitation, correlation, and coherence of electrons, spin, photons and nuclear motion.
TIMES merges different areas of expertise in many-body physics, time-dependent electronic structure methods, and machine learning to reach a new paradigm of the atomistic modelling of nonequilibrium processes in condensed matter. TIMES will train a new generation of scientists capable of devising novel theoretical and computational frameworks to simulate nonequilibrium phenomena. TIMES will synergize theoretical and numerical developments with High Performance Computer Centers, SMEs, and big-data facilities across Europe. The network activities will benefit from synergistic collaborations with leading experimental groups in ultrafast spectroscopy.

11 PhD positions in the Network
For the Marie Skłodowska-Curie Actions Doctoral Network "Time-resolved sImulations of ultrafast phenoMena in quantum matErialS (TIMES)" (times.uv.es) we have 11 open PhD positions in different aspects of computational and theoretical physics with an intended starting date between June and November 2024.

Research projects:
The 11 PhD projects covers several topics in the domain of time dependent simulations like exciton-ion dynamics, nonlinear response, decoherence phenomena, spin-waves, and light-induced structural phase transitions, among others.

DC1: Spin-waves and magnetization dynamics in 2D materials (University of Valencia)
DC2: Coupled exciton-ions dynamics in complex materials from first principles (CNR-ISM, Rome)
DC3: Exciton relaxation mechanisms due to structural complexities: exciton-phonon scattering, exciton transport and effect of defects in 2D TMDCs and layered perovskites (Weizmann Institute of Science)
DC4: Nonlinear optical responses in out-of-equilibrium systems (Queen University, Belfast)
DC5: Real time exciton dynamics (CNRS, Centre National de la recherche scientifique, Marseille)
DC6: Decoherence electron-ion effects in strongly perturbed finite electronic systems (CNRS, Centre National de la recherche scientifique, Toulouse)
DC7: Ultrafast carrier and exciton dynamics in 2D/layered materials within the real-time GW approximation (Università degli Studi di Roma Tor Vergata)
DC8: Defects in 2D materials at finite temperatures (Università degli Studi di Milano)
DC9: Electron-phonon interactions across a light-induced structural phase transition (Christian-Albrecht-Universitaet zu Kiel)
DC10: Decoherence in time-resolved spectroscopic observables with TDDFT (Università di Palermo)
DC11: Realistic light-induced non-equilibrium nuclear dynamics in real space (Max-Planck-Gesellschaft)

Training plan
The network has an innovative training plan in computational physics and chemistry, high-performance computing and quantum materials. The network has planned workshops, schools, code hackathons, and conferences in leading European Universities and Research Centers, together with collaborations with experimental researchers.

Secondments
All the PhD positions include funded research stays in the network nodes of beneficiaries and associated partners. Among the partner's network we count with Simune, IMEC, CINECA, MAX, among others.
TIMES will train a new generation of scientists capable of devising novel theoretical and computational frameworks to simulate nonequilibrium phenomena. TIMES will synergize theoretical and numerical developments with High Performance Computer Centers, SMEs, and big-data facilities across Europe. The network activities will benefit from synergistic collaborations with leading experimental groups in ultrafast spectroscopy.

Recruitment
Recruited DCs will receive a 36-months grant to cover living, travel and installation (mobility) allowance, and family allowance (if applicable), as reported in the following table. The reported amount is referred to gross salary (€/month) before tax. Please note that taxation may vary according to country.

Recruiting institution	Living allowance*	Mobility allowance	Family allowance**	Total maximum gross amount***
UV	3104,2	600	495	151171,2
CNR	3311,6	600	495	158637,6
WIS	3644,8	600	495	170632,8
MPG	3342,2	600	495	159739,2
CNRS-T	3957,6	600	495	181893,6
CNRS-M	3957,6	600	495	181893,6
TOV	3311,6	600	495	158637,6
CAU	3342,2	600	495	159739,2
UPA	3311,6	600	495	158637,6
UMI	3311,6	600	495	158637,6
QUB	4654,6	600	495	206985,6

* The amount is dependent on a country correction coefficient which takes into account the cost of living in the country of the recruiting institution.
** Only applicable to the DCs having or acquiring family obligations (i.e. persons linked to them by (i) marriage, or (ii) a relationship with equivalent status to a marriage recognized by the legislation of the country or region where this relationship was formalized; or (iii) dependent children who are being maintained by them) during the action duration.
*** These are the maximum GROSS amounts paid by the European Research Executive Agency (REA). Net salaries will depend on the national taxation applied by the recruiting institution's country and on possible extra-benefits granted by the employing institution.

All DCs will be provided with office space and all facilities for their research project.

Requirements
Candidates must have completed the Master studies at the time of incorporation and must comply with the eligibility criteria of the MSCA Doctoral Networks Background in one of the following areas: solid-state physics, computational chemistry, computational materials science and similar areas of research.
Experience in programming, high-performance computing, ab initio methods and machine learning methods is desirable.

Eligibility rules

The DC positions are open to candidates of any nationality, provided they fulfil the strict eligibility requirements established for the enrollment through the Marie Sklodowska-Curie Action-Doctoral Network. Each DC will be employed according to the financial and eligibility rules reported in the EU document accessible to the following link: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-2-msca-actions_horizon-2021-2022_en.pdf .

In particular eligible applicants must not have resided in the country where the research training activities will take place for more than 12 months in the 3 years immediately prior to the recruitment date (and not have carried out their main activity (work, studies, etc.) in that country).

How to apply

Interested candidates must submit a curriculum vitae (2 pages max.), indicating two references, a short research statement (1 page maximum), and the transcripts of academic records. Applications should be uploaded as a single PDF file through the web form (https://times.uv.es/open-positions/), indicating the preferred supervisor/PhD project (up to 3 options in order of preference) and the time window in which you are available to start.

Assessment criteria

Selection of the DCs will be solely based on merits providing equal opportunity and in agreement with the European Code of Conduct for the Recruitment of Researchers
Applications will be evaluated against the following criteria:
- educational record;
- scientific quality of the applicant's CV;
- previous experience in the subject of TIMES research programme.
The selection process will take place in two steps. The first step will be based on the assessment of the documents submitted with the application. Then shortlisted candidates will be invited for an interview with supervisor/co-supervisor from the network (online). Good level of English proficiency (understood, spoken and written) will be considered. Candidates will be notified of the outcome.
The evaluation process start with the official starting of the project (March 1st 2024) and will end once all the nodes have selected one candidate, in any case before November 2024.

Starting date

The starting date of each PhD contract shall be set according to local rules of the Beneficiary institution and in agreement with the local supervisor of the selected DC project. However, a guess starting date of the PhD contracts is between September and December.