

Early stage researchers in "Collective effects and optomechanics in ultra-cold matter"

Tue, 2017-02-14 18:23 - [Thorsten Ackemann](#) [1] **At:** European Training Network ColOpt - Collective effects and optomechanics in ultra-cold matter

Deadline: 1 April, 2017

Location

12 academic institutions and companies in Europe Europe

ColOpt

Collective effects and optomechanics in ultra-cold matter

is inviting applications of highly qualified and ambitious early state researchers for three year research or research & development projects. In total 15 positions are available at 12 partners. Candidates hosted at university nodes are expected to participate in the PhD programme of their host institution.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 721465 and is starting on 1/1/2017.

Project description

ColOpt will train early-stage researchers (ESR) in fundamental science and applications in the areas of cold atom and quantum physics, optical technologies and complexity science to promote European competitiveness in emergent quantum technologies. It consists of nine research-strong academic nodes and three leading technology companies from six European countries, supported by two partners in Brazil and the USA, five further non-academic partners and one public-private partnership.

Collective, nonlinear dynamics and spontaneous self-organization are abundant in nature, sciences and technology and of central importance. Building on this interdisciplinary relevance, a particular novelty of ColOpt is the integration of classical and quantum self-organization. The research program focuses on collective interactions of light with laser-cooled cold and quantum-degenerate matter. We will explore innovative control of matter through optomechanical effects, identify novel quantum phases, enhance knowledge of long-range coupled systems and advance the associated trapping, laser and optical technologies, establishing new concepts in quantum information and simulation. Four scientific work packages will look into spatial self-organization, novel trapping schemes and complex light fields, collective scattering and coupled dipoles and the advancement of the underpinning laser technology.

Training provided

The research training provided will comprise a broad portfolio of technical and transferable skills training on local and network level. The project will be part of a **vibrant and stimulating international and inter-sectorial collaboration** preparing excellently for a broad range of academic and industrial careers. Strong participation of non-academic partners and the interaction of academic and industrial partners is meant to raise awareness of career opportunities and to foster a culture of knowledge exchange and fruitful interaction between the academic and private sector, in particular to drive the emerging quantum technologies. The researcher is expected to attend about two network events per year and to interact with the partners at these meetings, via electronic

media and secondments. Major secondments to partners, in particular inter-sectorial placement are an intrinsic part of the network experience.

Who can apply

We are looking for excellent and highly motivated candidates with a physics (or possibly for the industrial R&D projects a closely related degree as electric engineering) and strong interest and experience in at least some of the areas of atomic physics, nonlinear optics, laser physics and quantum physics and the emerging quantum technologies. We expect dedication and enthusiasm for experimental or theoretical research combined with openness and curiosity and the ability and willingness to work in a team. Researchers with an excellent BSc degree and the appropriate background can be considered without having a Master degree by some of the partners.

As the project is funded within the Marie Skłodowska Curie Actions (MSCA), researchers can be of **any nationality** but need to demonstrate transnational **mobility**, i.e. move from one country to another when taking up their appointment. At the time of recruitment by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of their host organisation for more than 12 months in the 3 years immediately before the reference date. Compulsory national service and/or short stays such as holidays are not taken into account. In addition, the researcher must be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. This time is measured from the date when the researcher obtained the degree entitling him/her to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the researcher is recruited.

Working conditions and benefits

The successful candidate will be a full time employee and will be paid minimum in accordance with the MSCA rules. The contract period will be for 36 months.

ColOpt is aiming to have the positions filled till August 2017 but there is flexibility of an earlier or potentially slightly later start, if required by personal circumstances.

How to apply

Applications are made to the individual nodes with the contact details and weblinks for applications given in

http://colopt.phys.strath.ac.uk/wp-content/uploads/2017/02/ESR_advert-ne... [2]

Deadlines for applications are between February and April 2017 and applications are considered until the positions are filled.

Typical material required are a CV and 1-page cover letter (including names and contact details of at least two references) and a copy of your BSc and MSc (if applicable) degree certificate and transcript. If an applicant wants to be considered across the network, if unsuccessful at a particular node, please mention that in your application so that the information can be shared across the network.

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ColOpt is devoted to promote gender equality and diversity and encourages female researchers to apply.

Further information will be available on the [website](#) [3] which is under development. For more information contact Prof. Thorsten Ackemann at [thorsten \[dot\] ackemann \[at\] strath \[dot\] ac \[dot\] uk](mailto:thorsten.ackemann@strath.ac.uk).

- [PhD](#) [4]

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Links:

[1] <http://qurope.eu/users/ackemann>

[2] http://colopt.phys.strath.ac.uk/wp-content/uploads/2017/02/ESR_advert-network_umbrella_ad.pdf

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