



## H2020 HEL4CHIROLED Marie Sklodowska-Curie ITN Early Stage Researcher Fellowships (ESR) - 3 years PhD positions

**Application Deadline: 10/04/2020 – 23:00 Europe/Brussels time**

A 36 months PhD position is available at the *Department of Chemistry and Industrial Chemistry of the University of Pisa (Università di Pisa)* in the frame of the **Marie Sklodowska-Curie Innovative Training Network HEL4CHIROLED (Grant Agreement: 859752)**.

The early stage researcher (ESR), who will take part in the above project, will be enrolled in the PhD Course of Chemistry and Material Science of the University of Pisa, granting a PhD degree at the end of three years.

The principal research goal of the Marie-Sklodowska-Curie European Training Network HEL4CHIROLED project is the preparation of chiral Organic Light-Emitting Diodes (OLEDs) and Organic Light-Emissive Transistors (OLETs) based on new small helical molecules, helical pi-conjugated oligomers, and helical lanthanide complexes.

HEL4CHIROLED will:

- Create a research and training environment that is world-leading and optimally tailored to capitalise, for example, on the investment that has been made on chirality-related technologies.
- The ESRs will be trained in world-leading laboratories and/or in private beneficiaries and will benefit from the exchange of best practice among beneficiaries and partners, and from unique training events.
- Ensure that European research remains competitive in the global market, and that the trained researchers will be uniquely well-placed to contribute to the development of novel optoelectronic devices, displays and imaging technology of the future.

### Title of the ESR project to be developed in Pisa

**“Chiral lanthanide complexes with strong CPL activity for chiral OLEDs”**

**Main supervisor:** Prof. Lorenzo Di Bari ([lorenzo.dibari@unipi.it](mailto:lorenzo.dibari@unipi.it)).

Necessary to send the application form also to: Maria G. Viola ([mg.viola@unipi.it](mailto:mg.viola@unipi.it)).

### Objectives:

- Integrating knowledge of organic and inorganic chemistry, the PhD student will synthesize new luminescent Ln(III) complexes incorporating chiral ligands. He/she will use either commercial or easily accessible chiral ligands, possibly in association with achiral ones. He/she will use computational methods for selecting the most reasonable ligands with the help of Jagiellonian University in Krakow (PL). He/She will also study the chiroptical properties (ECD, VCD and above all CPL) of each product both in solution and at the solid state. He/she will run electrochemistry to match its HOMO-LUMO energy levels with the organic conducting material constituting the active layer of the device.

### Expected Results:

- Improved CP-OLEDs based on Ln(III) compounds are expected. New types of chiral lanthanide complexes. Possible applications in bioimaging. Better knowledge on CPL activity of chiral lanthanide complexes.



**Planned secondments:**

- FScan (UK) for lanthanides complexation and private sector training, Jagiellonian University (PL) for quantum-chemical studies of chiroptical properties, Imperial College (UK) for OLEDs preparation.

**Requirements:**

The position is open to candidates of any nationality, as long as they fulfill the requirements set for the ESRs funded by Marie Skłodowska-Curie actions:

- (1) Candidates who have already obtained a Ph.D. degree, or have more than 4 years of research activity (from the date when they have obtained a University diploma giving access to doctoral studies), are NOT eligible.
- (2) Researchers must NOT have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years immediately prior to the date of appointment.

The salary of the ESRs will be paid according to the Marie Skłodowska-Curie action rules. For more information:

[https://ec.europa.eu/research/participants/data/ref/h2020/other/guides\\_for\\_applicants/h2020-guide-appl-msca-if-2018-20\\_en.pdf](https://ec.europa.eu/research/participants/data/ref/h2020/other/guides_for_applicants/h2020-guide-appl-msca-if-2018-20_en.pdf)

**Required Academic degree / Desired experience**

The applicants must have acquired a University diploma giving access to doctoral studies, preferably in Chemistry in the Country where the diploma was earned (typically, a MSc or a degree equivalent to at least 300 ECTS, ideally in Chemistry or Industrial Chemistry or related subject).

The ideal candidate must have a strong background and practical experience in organic/inorganic chemistry and in spectroscopy, documented by her/his MSc thesis.

Very important skills that will be considered are the following:

- practical experience in analytical methods (NMR);
- excellent knowledge of the English language (comprehension, speaking and writing);
- good abilities in scientific writing (reports, manuscripts);
- team-oriented and cooperative working attitude;
- motivation and willingness to spend several months on secondment in another research group;
- motivation and willingness to present scientific results in conferences and to publish in scientific journals.

Preferable additional qualifications that will be considered: background in stereochemistry, in absorption/emission electronic spectroscopies, circular dichroism or chiroptical methods.

**Applications:** Instructions on how to apply can be found at the following website <https://euraxess.ec.europa.eu/jobs/487188>

Please include in your application:

- Curriculum vitae including relevant skills, experience and publication list;
- Motivation letter (1 page);
- University transcripts and certificates: Bachelor and Master degrees. For EU Countries, the Diploma Supplement is recommended, see: [http://ec.europa.eu/education/tools/diploma-supplement\\_en.htm](http://ec.europa.eu/education/tools/diploma-supplement_en.htm)
- In addition, two reference letters are welcome. The applicant should ask her/his referees to send the letters separately and confidentially to the e-mail address: [mg.viola@unipi.it](mailto:mg.viola@unipi.it).  
The same e-mail address can also be used for informal enquiries regarding the project and the application procedure.



**Where to send your application:**

- University of Rennes – CNRS Natalia del Rio: <natalia.del-rio@univ-rennes1.fr> and in copy (cc) to Maria G. Viola <[mg.viola@unipi.it](mailto:mg.viola@unipi.it)>

Skype interviews will be organized for short-listed applicants in the period **May 4<sup>th</sup> - June 12<sup>th</sup>, 2020**.

Ranking of the applicants: not later **than June 26<sup>th</sup>, 2020**.

Start date: The expected start date of the fellowship will depend on the time for issuing the necessary administrative authorizations and should be between **September 1<sup>st</sup> and October 31<sup>st</sup>, 2020**.