

ESR5 Position

The ESR will be recruited within the H2020-MSCA-ITN-2017-765297 project [NOAH](#) (**Network of functional molecular containers with controlled switchable abilities**).

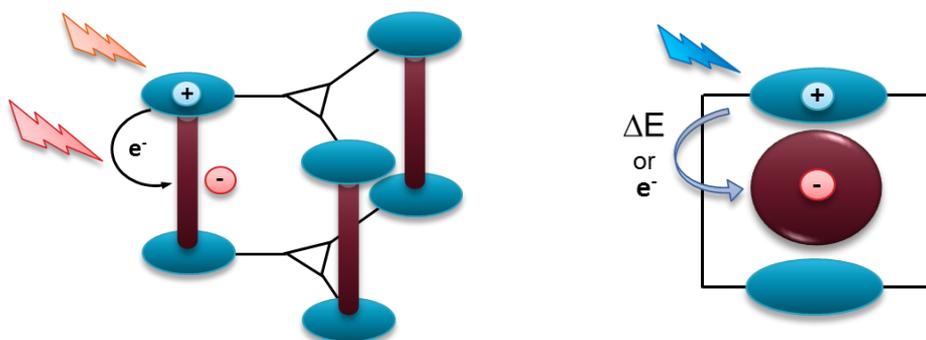
NOAH deals with the education of early-stage researchers (ESRs) in a multidisciplinary chemical research program within the area of functional molecular containers, encapsulation processes and their applications. The general scientific aims are the development, characterization (structural, thermodynamic and kinetic) and transfer to applications of different types of molecular containers (i.e. covalent, dynamic covalent, hydrogen bond or metal coordination-based containers). The proposed training network aims to bring in a great variety of scientific attributes to the selected ESRs (organic and inorganic synthesis, computational chemistry, photo- and electro-chemistry, MS/gas-phase chemistry, X-ray diffraction and optical spectroscopy).

Individual project:

Photoinduced processes in host-guest systems based on molecular capsules

Description of the project:

The ESR individual project will focus on: *i*) characterization of photo/electro active guests and study of encapsulation processes; *ii*) identification of the mechanisms at the basis of useful photo/electro induced functions (e.g. formation/disruption processes); *iii*) characterization of photo/electro active units to be used as building blocks in the walls of photo-switchable capsules; *iv*) study of the photo/electro induced processes that occur in selected host-guest systems promising for a wide range of applications: from drug delivery and cancer treatment to chemical reaction initiation. A couple of examples are schematized below:



References of the research group related to the subject:

- [1] A. Briš, P. Trošelj, D. Margetić, L. Flamigni, B. Ventura, *ChemPlusChem* **2016**, *81*, 985-994.
- [2] S. Durot, L. Flamigni, J. Taesch, T. T. Dang, V. Heitz, B. Ventura, *Chem. Eur. J.* **2014**, *20*, 9979-9990.
- [3] M. Beyler, L. Flamigni, V. Heitz, J.-P. Sauvage, B. Ventura, *Photochem. Photobiol.* **2014**, *90*, 275-286.
- [4] G. Aragay, B. Ventura, A. Guerra, I. Pintre, C. Chiorboli, R. García-Fandiño, L. Flamigni, J. R. Granja, P. Ballester, *Chem. Eur. J.* **2014**, *20*, 3427–3438.
- [5] L. P. Hernández-Eguía, E. C. Escudero-Adán, I. C. Pintre, B. Ventura, L. Flamigni, P. Ballester, *Chem. Eur. J.* **2011**, *17*, 14564-14577.

Training:

In addition to the training gained through research, more specific training objectives have been planned:

- To provide an **individualized scientific training programme** performed locally and network-wide.
- To provide the ESR with **transferable soft-skills** to improve his/her overall career perspectives.
- To provide the ESR with a very multidisciplinary and intersectoral (**academic and industrial secondments**) background in order to improve his/her employability in different sectors.

Expected results:

The ESR is expected to gain basic and advanced knowledge in photophysics and photochemistry and will end with skills in many spectroscopic techniques, such as absorption and emission spectroscopy, time-resolved luminescence, transient absorption, flash photolysis, confocal fluorescence microscopy. The ESR will also gain experience in ultrafast photophysical techniques.

Planned secondments:

Academic Secondment: Three months secondment at UNINE working on the synthesis of ruthenium metalla-assemblies, with training on X-ray diffraction methods. This secondment will allow the ESR to actively work in synthetic chemistry.

Industrial Secondment: Six-months secondment at Leitat facilities, where he/she will work on supported photoswitchable molecular containers for encapsulation of drugs. Light sources, light-sensitive organic chemical groups and suitability of supports (e.g. biopolymer) for injectable and/or oral medication for localized delivery will be investigated.



Hosting Institution:

Istituto per la Sintesi Organica e la Fotoreattività ([ISOF](#)) – Consiglio Nazionale delle Ricerche (CNR) – Bologna, Italy. Director: Dr. Roberto Zamboni.

ISOF has fully equipped laboratories for steady-state and time-resolved photophysical characterization of materials both in solution and in the solid state. The ESR will work under the supervision of Dr. Barbara Ventura.

Job conditions:

Appointment under full-time employment contract for a period of **36 months**.

Remuneration: Living Allowance = €3110/month (correction factor to be applied per country) + mobility allowance = €600/month + family allowance if applicable = €500/month. *Monthly salary for the fellow before any deductions.*

Additional funding for participation to courses, workshops, conferences, etc.

Enrollment in a Doctorate program with the possibility to lead to a PhD dissertation.

Starting date: The ESR contract is expected to start from October 2018 (estimated time).

Eligibility requirements:

EU eligibility criteria for candidates: Candidates of any nationality can apply, but in order to be eligible for the position the following criteria need to be fulfilled:

- The applicant shall at the time of recruitment be in the **first four years of his/her research career** and have **not been awarded a doctoral degree**.
- The applicant must not have resided or carried out his/her main activity **in Italy for more than 12 months in the 3 years immediately prior to the recruitment**.

Candidate profile: candidates must hold a **Master's degree in Chemistry** with excellent academic transcripts. We are looking for **highly motivated** students with **good communication skills**.

Recruitment:

Calls will be opened for 2 months and resolved within the three following weeks. First recruitment call (C1) will be **opened from 1st April 2018 to 31st May 2018**. Apply at www.noah-itn.eu.

A second (C2) or third (C3) call will be only launched if not all the positions are covered with C1 or C2, respectively. Non-selected eligible candidates will be redirected to apply for other available positions in the following call.

Questions regarding the recruitment can be sent to: noah@noah-itn.eu

Questions regarding the individual project can be sent to: barbara.ventura@isof.cnr.it

