PHOTOPHYSICS OF INNOVATIVE ORGANIC CHARGE-TRANSFER SYSTEMS

Area of Knowledge: Physical Sciences, Mathematics and Engineering
Group of disciplines: Chemistry and Chemical Engineering

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RESEARCH PROJECT:

Our research is dedicated to the understanding of Photophysics of Organic and Hybrid Supramolecular Nanosystems for Optoelectronic Applications such as LEDs, solar cells, lasers, sensors, photoswitches or memory devices. Rapid progress has been seen in the last years in particular due to the development by 3rd generation materials based on complex supra-/molecular structures via highly diversified donor-acceptor (D-A) dyads, complexes, co-polymers and -oligomers, co-crystals and phase-separated D-A systems.

The ultimate goal, i.e. unbiased, targeted design of tailor-made materials systems, however, can only be reached in an interdisciplinary manner, which we tackle in an integrative spectroscopic & computational approach, based on a strong background in chemistry & materials science. This truly interdisciplinary approach allows for a thorough and systematic insight into the electronic, optical and photophysical properties of complex conjugated organic materials.

The multidisciplinary character of our research asks for intense collaboration with synthetists, material scientists, quantum chemists, laser physicists, and device engineers, which we have established in the past years through (inter)national projects, and in particular through the collaborative and complementary ambience of the young research teams in which our group is embedded at IMDEA Nanociencia.

JOB DESCRIPTION

The intended research project on Photophysics of Innovative Organic Charge-Transfer Systems provides an excellent platform for a skilled MSc of chemistry, physics or material sciences. The PhD student's work will be dedicated to the experimental characterization of CT states through steady-state & transient fluorescence and absorption spectroscopy (75%), along with quantum chemical calculations (25%), inter alia through an exchange program with our partner group at Univ. Valencia, considered as mandatory to work in this interdisciplinary field of science.

what we expect:

- MSc of chemistry, physics or material sciences, preferably with a good background in physical (organic) chemistry
- Good abilities in English communication
- Motivation and creative, proactive, interdisciplinary & collaborative thinking
- High degree of independent working and technical skills to handle non-standard instrumentation
- Motivation and creative, proactive, interdisciplinary & collaborative thinking
- Interest in learning/understanding/advancing the underlying theory (photophysics of organic materials), (advanced) spectroscopic techniques, and the use of quantum chemistry

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what we offer:

- State-of the art, inter-disciplinary research on a technologically highly relevant subject with intense in-house and international collaboration
- Thorough supervision by experienced and highly recognized researchers in the field with frequent, regular discussions & group seminars
- Training through the local PhD program, but in particular through in-depth courses by the co-supervisors on Photophysics of Conjugated Organic Materials (30h) and Quantum Chemistry of Conjugated Organic Materials (30h)
- Complementary training in scientific communication (paper writing, oral presentation)
- Attendance to thematic summer schools, training courses, symposia and conferences
- Secondment in a partner group

MORE INFORMATION:


Other info:

[https://www.uv.es/jogiers](https://www.uv.es/jogiers)
IMDEA Nanociencia is a young interdisciplinary research centre dedicated to the exploration of basic nanoscience and the development of applications of nanotechnology in connection with innovative industries.

Our purpose-built building was inaugurated in 2014 and features state-of-the-art facilities for 21st century science, where the frontiers between fields disappear and Physics, Chemistry, Biology, Engineering, and Medicine merge. It features more than 30 operative laboratories with over € 16 M worth of equipment -including the Centre for Micro and Nanofabrication. We are located at the UAM Campus, with access to all the facilities of one of Spain’s largest and most prestigious Universities. The UAM Campus is just a few minutes away from Madrid’s lively city centre, connected by “cercanías” trains and several bus lines.

We are over 180 scientists, with different professional and personal backgrounds. Approximately 40% of our PhD and postdocs come from outside Spain, representing every corner of the world, from Germany to China, from the USA to Singapore — a true international environment in which to develop your scientific career. Women make up 45% of our scientific and 60% of our management staff. No matter who you are or where you come from, you will feel welcome from the very first minute.

We take science seriously and value quality over quantity. Our scientists enjoy tackling complex multidisciplinary problems, often within in-house collaborations, so all of our students receive truly interdisciplinary training. We also enjoy publishing in the very best journals, with >200 publications a year, and an institutional h index of 90. Check out our webpage, facebook @IMDEANanociencia or twitter @IMDEA_Nano for more information.

So if you are a talented, hard-working individual with a real interest in Science, IMDEA Nanociencia is the right place for you! Come work with us!