SUNRISE community call for abstracts: Young researchers travel grants

SUNRISE – Solar Energy for a Circular Economy – has been successfully selected as one of the six coordination and support actions (CSA) by the European Commission aiming at preparing a new European large-scale research initiative, to be potentially supported in the next European research and innovation framework programme, Horizon Europe. The CSA project started March 1st 2019 funded with €1M. The main objectives of the CSA are to: (i) Develop the Scientific and Technological (S&T) roadmap; (ii) Build the community for carrying out the large-scale initiative roadmap including scientific, industrial and general public stakeholders; and (iii) Establish an effective Flagship governance scheme.

The main goal behind a future SUNRISE large-scale research and innovation programme is to provide a sustainable alternative to the fossil-based, energy-intensive production of fuels and base chemicals. The needed energy will be provided by sunlight, the raw materials will be water and other molecules abundantly available in the atmosphere, such as carbon dioxide, oxygen and nitrogen.

SUNRISE focuses on three main targets:

(1) Provision of sustainable fuels from renewable energy (solar fuels);

(2) Synthesis of commodity chemicals from renewable energy (solar chemicals);

(3) Development of efficient methods to recycle CO_2 from the atmosphere (long term, 2050).

To fulfil these objectives, SUNRISE will pursue three artificial photosynthesis approaches beyond their current technological limitations, warranting their scale-up at an affordable cost for materials and the Earth's surface.

Approach 1: Electrochemical conversion with renewable power: efficient and sustainable processes for the conversion and storage of renewable power into liquid or gaseous fuels.

Approach 2: Direct conversion via integrated artificial photosynthetic systems: develop integrated photoelectrocatalytic arrays to enable disruptive renewable fuel and chemical synthesis from photoexcited states of materials, thus directly driving catalytic transformations.

Approach 3: Direct conversion via biological and biohybrid systems: employment of living microorganisms capable of direct solar energy conversion and storage. Genuine biological systems exploit photosynthetic microorganisms to generate microbial cell factories, i.e. cyanobacteria and green algae, while biohybrid systems involve a material-microorganism interaction.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under gran agreement No 816336

The SUNRISE CSA aims at working in close cooperation with universities and industry, including young researchers. The new generation of scientists will be the ones applying and benefiting from SUNRISE's long-term development, therefore SUNRISE wants to facilitate the transfer of knowledge and expertise between the current and future generations of scientists and contribute to the education of the workforce of the future on its three synergistic approaches.

Subject of this call for abstracts is either fundamental or applied research in all sub-areas relevant for the three described approaches.

Typical (non-exhaustive) research examples include:

- Research on light-converting/harvesting-, catalytic-, electrode-, membrane materials
- Investigating mechanisms of catalysis and light harvesting for photochemical conversion of small molecules
- Heterogeneous photoelectrochemistry/photocatalysis
- Photocatalytic water splitting
- Photochemical or photoelectrochemical CO_2 reduction
- Reaction engineering
- Conversion by living organisms and biocatalysts (enzymes, etc.) as well as biocatalysts used in combination with a synthetic catalyst
- Environmental studies and life cycle analysis
- Economic studies and life-cycle cost analysis
- Social and ethical studies

Eligibility criteria:

Candidates must comply with the following criteria at the time of the deadline (**30 April 2019**):

- Young researchers from the SUNRISE community (project partners and supporters at the deadline date) are eligible to participate in the call. See the support section in our webpage with all logos of our supporters: https://www.sunriseaction.com/support
- The call is open to PhD students and postdoctoral researchers, as long as their PhD title has been awarded no more than four years before the call deadline (measured from the certified date of obtaining the PhD degree).
- Abstracts for poster or oral communications at worldwide events must have already been accepted by the organizing scientific committee at the time of the call deadline.
- Events should take place between May 2019 and February 2020 (both included).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under gran agreement No 816336

Evaluation criteria:

- Abstracts will be evaluated by an award panel formed by members of the Quality and Impact Assurance team of the project.
- Originality and research excellence will be the main criteria to evaluate the abstracts.
- In addition, impact of the research and size of the potential audience at the chosen event will also be evaluated.

Prizes:

- Up to three travel grants of 400€ will be awarded, one for each of the 3 different approaches (electrochemical conversion; photoelectrochemical conversion systems and biological or biohybrid conversion systems). Grants are intended to cover travel, subsistence allowances and/or registration costs.

Conditions:

- Applications that are not complete or not complying with the eligibility criteria will be automatically rejected.
- The award panel will provide the names of the 3 awardees and 6 reserve-list applicants (2 for each approach) by the 17th of May 2019.* The awarded candidates will have 5 working days to present any required supporting documents (e.g. PhD certificate, confirmation of the abstract acceptance, etc.). If a successful applicant fails to provide all the required documents, the award will automatically be transferred to the next candidate in the reserve list (under the same approach).
- Awarded candidates will be required to provide graphical evidence of their contributions in the selected events, for instance by posting a picture/video in SUNRISE social media, adding entries to the liveblog in SUNRISE website, sending a news piece, etc.

Any questions? Please contact us at sunrise.csa@gmail.com

*This date might be delayed depending on the number of applications received.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under gran agreement No 816336