Conference Overview

With an expanding global population it is increasingly becoming clear that long-term energy and food production will need to draw more on the capacity of new technologies to collect and store sunlight in the form of chemical potential. Researchers in major national projects such as the Joint Center for Artificial Photosynthesis (JCAP) in the US and Solar H network in Europe are now are actively redesigning photosynthesis in ways that may achieve low cost, localised, conversion of sunlight, water and carbon dioxide into fuel for heating and cooking. Enhanced artificial photosynthesis, if applied equitably, could assist crop production on marginal lands, reduce atmospheric CO2 levels, lower geopolitical and military tensions over fossil fuel, food and water scarcity and create carbon-neutral hydrogen fuel for domestic, community and industrial storage. To date, however, there has been no concerted effort to establish global collaborations, funding and governance structures for artificial photosynthesis.

This conference provides a unique forum for senior and junior researchers to discuss prospects for global collaboration in artificial photosynthesis in:

- energy capture
- energy conversion and storage
- carbon fixation and
- modified and synthetic biological processes.

It also aims to bring such researchers together for the first time with those involved in shaping the governance architecture for global artificial photosynthesis.

Establishing the ethical and legal principles to globally promote artificial photosynthesis research and technology will be equally important with facilitating the scientific collaborations that will allow it to take place in time to address major societal and environmental challenges from the expanding human population and its dependence on fossil fuels.

The meeting will be of interest to researchers in artificial photosynthesis and renewable energy science and policy as well as those involved in disciplines such as bioethics, health law and international law who wish to become acquainted with an exciting, emerging field of interdisciplinary research.

The meeting will feature plenary talks by international experts in artificial photosynthesis and global governance of scientific collaboration. There will be panel fora during the morning sessions and shorter talks with associated discussions in the evenings. The period between lunch and dinner will be free to allow informal small group discussion amongst the environment of the island.

The meeting aims to progress a statement on the basic principles that should underpin global collaboration on artificial photosynthesis and to incorporate these in a joint publication by the major contributors.

Offers of oral and poster presentations within any of the themes of the meeting are now invited. Those presenting posters will have the opportunity to speak in the evening sessions.