1. PREFACE

Vorwort

In the year of 2010, organic polymeric solar cells hit the record efficiency of 8.4 % (by Konarka Inc. which is also a spin off of our Institute intellectually and scientifically). Now this technology is getting introduced into practical products by other campanies and as the citation index analysis clearly shows below, there is still a huge increase in number of scientific papers in this field of organic solar cells. As research and development field, organic solar cells will be heavily interesting in the next decade.

The year of 2010 was dominated by the spin off and closing of our latest Project "Solar Fuel". The newly formed company Solar Fuel GesmbH moved out of our Institute and settled in South Germany, at Vaihingen, Stuttgart. The different students and coworkers we have been educating, have moved to other jobs, since they did not want to move to Stuttgart location of the Company. As such it is a great loss of highest educated scientific man power in the field of "CO2 Recycling using Renewable Energies". The original plan, to settle the spin of company near Linz has failed. The different reasons for this failure are mostly based on missing financial support of Solar Fuel Project by the local and national agencies and companies. The ample support of this idea of CO2 Recycling in Stuttgart, Germany was very attractive for Solar Fuel GesmbH to move there. Interestingly, after the company has moved to Germany, there are now several initiatives emerging in the field of CO2 Recycling around Linz. The Profactor in Steyr and the Energy Institute of Johannes Kepler University as well as several industries have started showing interest in this field of research late 2010. Nevertheless, the project of Solar Fuel is continuing as spin off company in Germany and the interest in LIOS on working in this field is greater than ever. Many reports showing the international oil companies and large multinational companies stepping into this idea are a clear sign that we had the right step in the right direction when we started this research field over 3 years ago in LIOS.

To convert CO2 into a "synthetic natural gas" like methane or even to convert CO2 into an artificial gasoline using renewable energies will be solving two problems simultaneously:

1.) The storage of renewable energy into a transportable, chemical energy. The chemical energy density of a liquid fuel is orders of magnitude higher than any corresponding battery with similar energies. Also the entire infrastructure of natural gas and oil industries are ready to use.
2.) The conversion of green house gas CO2 into something useful like a fuel, instead of pumping it into the earth just to dump there (sequestration has no direct use). This will help to make sustainable fuels and sustainable future societies.

This project (CO2 recycling into artificial fuels using Solar Energy) will continue and florish in the future of this world and we intend to play an important scientific role in this future, here or there or somewhere…

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