Royal Thai Government

BLOCK COPOLYMER SELF-ASSEMBLY AND APPLICATION FOR POLYMER ELECTRODES

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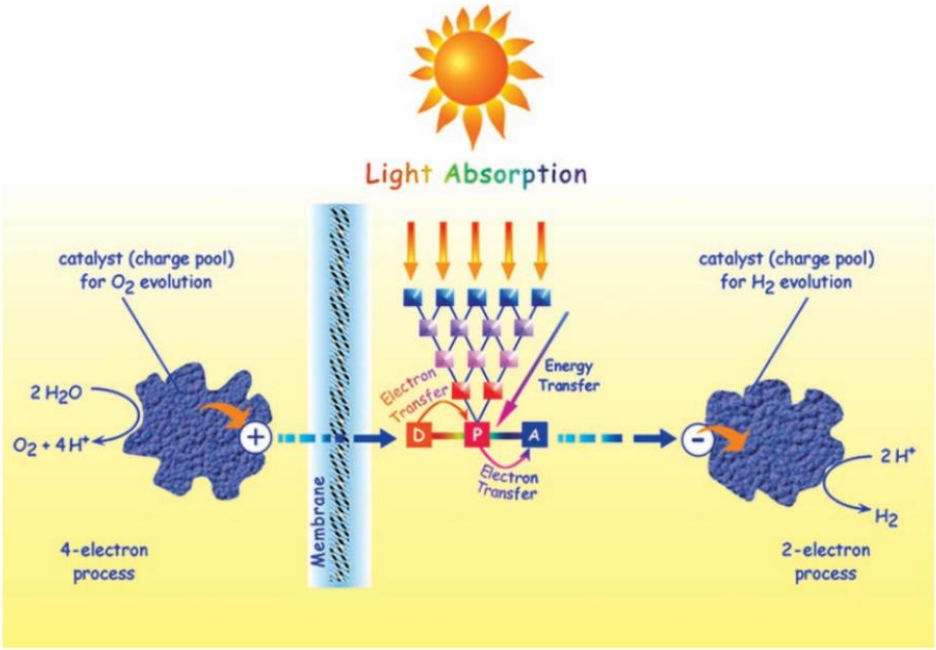
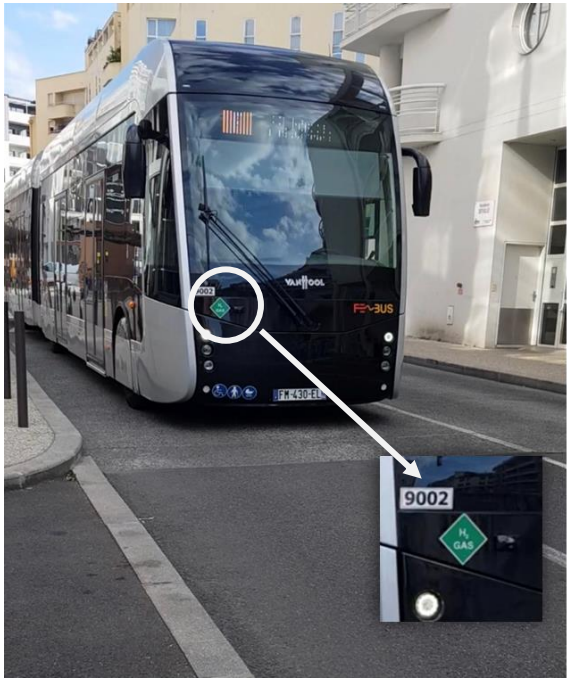
Artificial photosynthesis and the application of H_2

Artificial photosynthesis



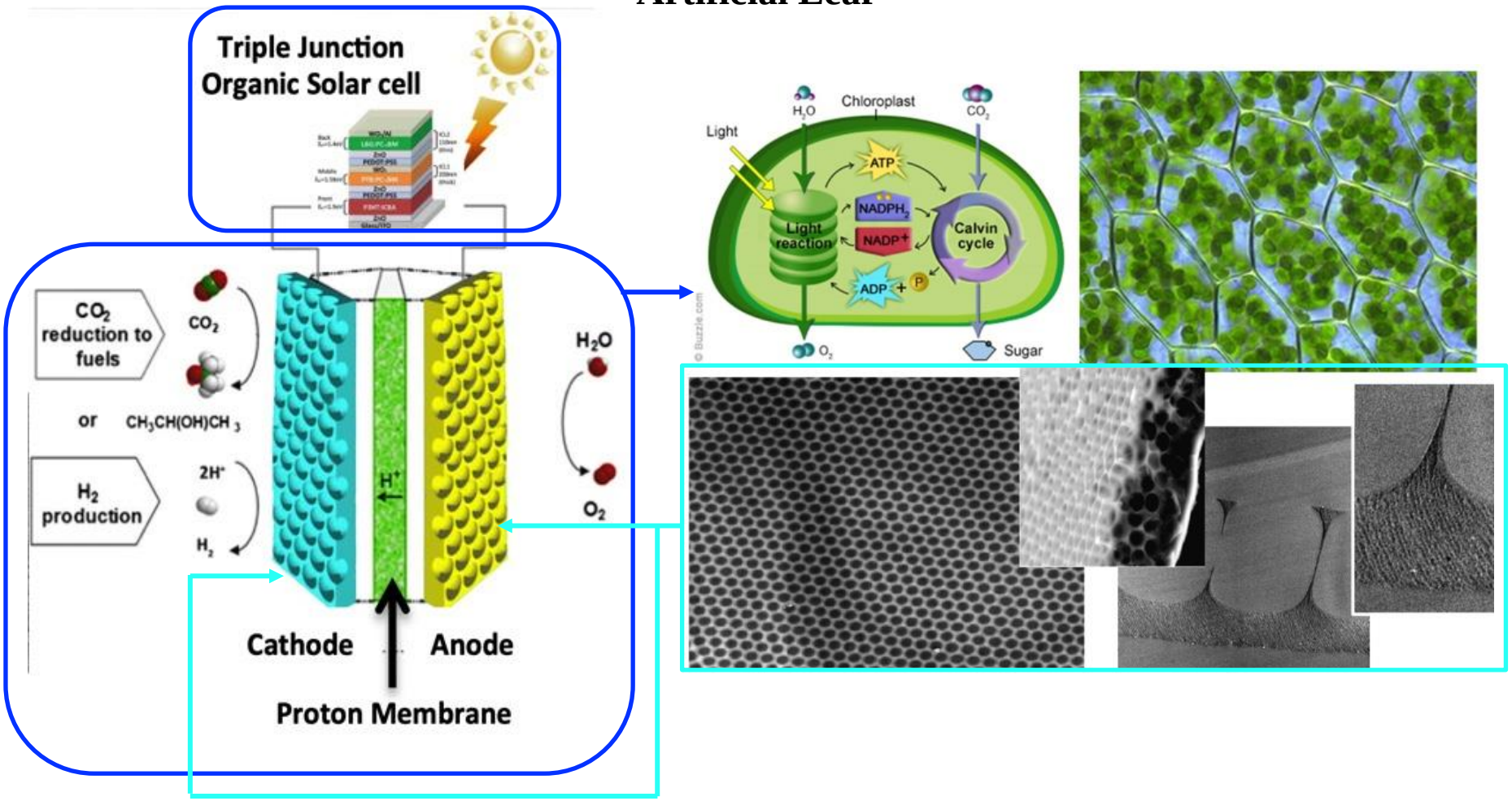
Angewandte Chemie. 2007, 46, 52 – 66

Electric bus



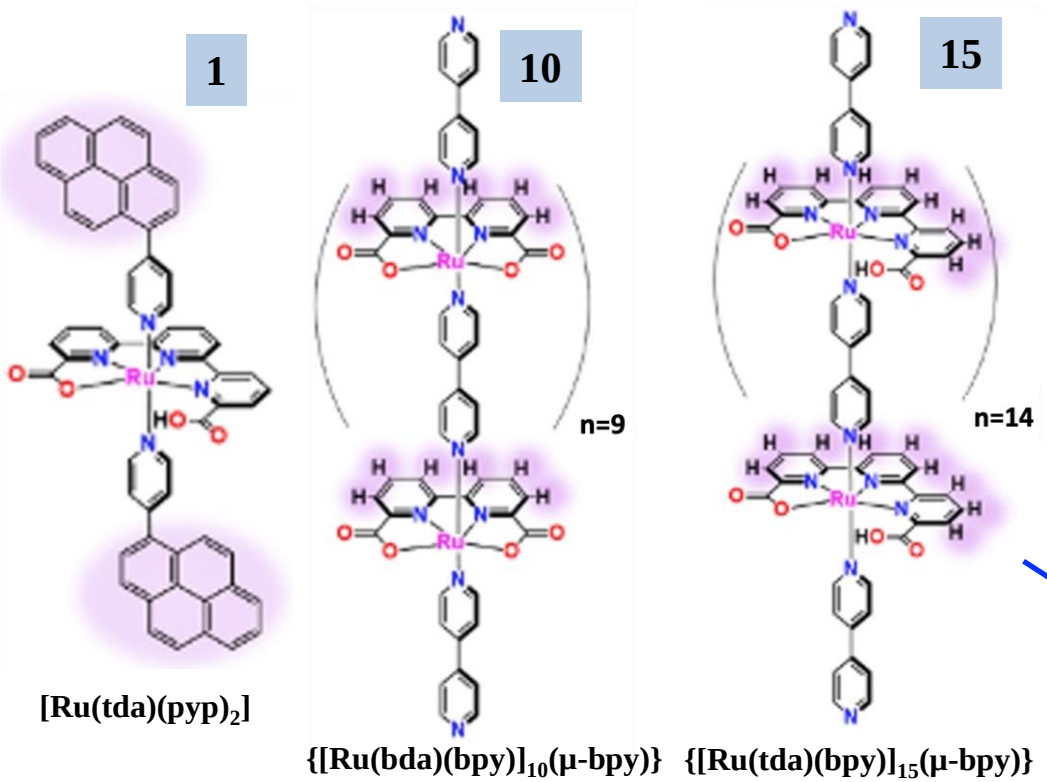
Scope of research : European school on Artificial Leaf (eSCLED) project

Artificial Leaf

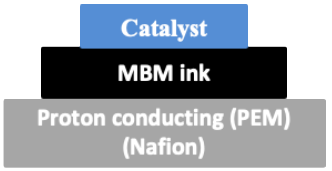


*Projet **eSCALED** - **École européenne sur la feuille artificielle : électrodes et dispositifs** (European School on Artificial Leaf: Electrodes & Devices) - MARIE Skłodowska-CURIE ACTIONS / Innovative Training Networks (ITN) / European Joint Doctorates (EJD) /H2020-MSCA-ITN-EJD-2017*

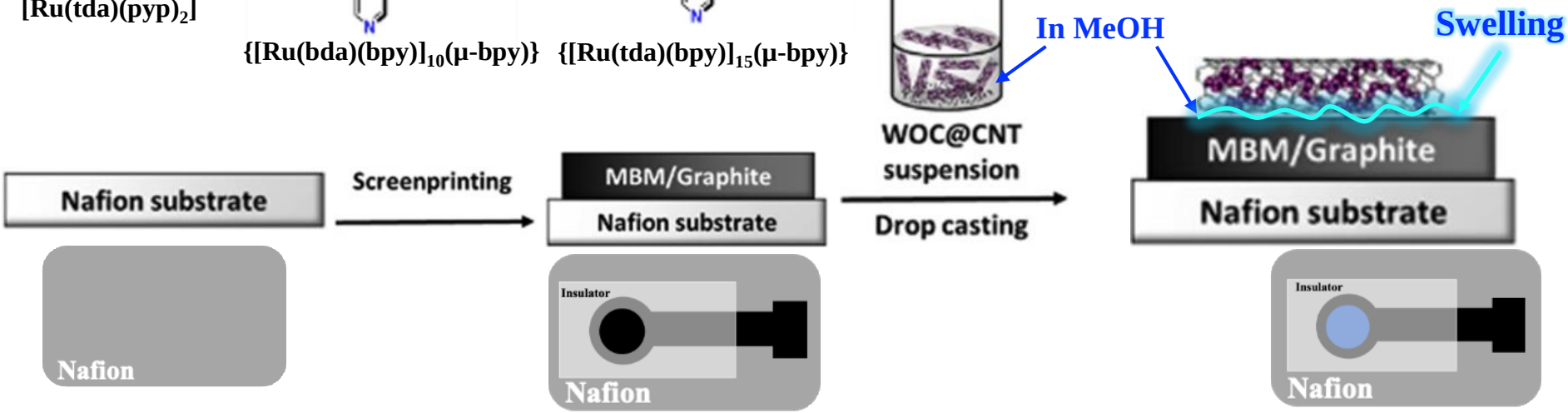
Part I: Water Oxidation from Printed Electrode, Research Strategy



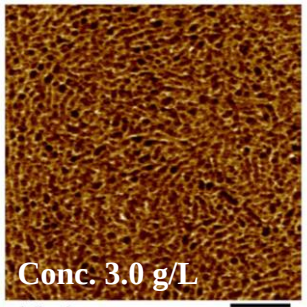
All catalysts were kindly provided by Prof. Antoni Llobet's group (ICIQ) Spain.



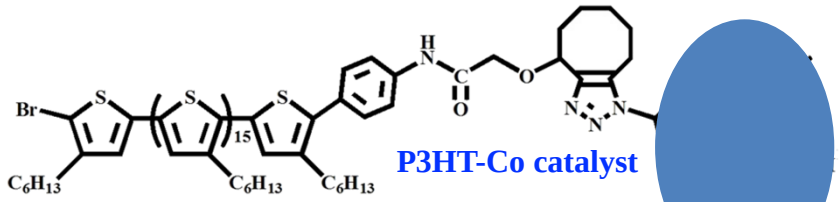
Molecular printed electrode (MPE)



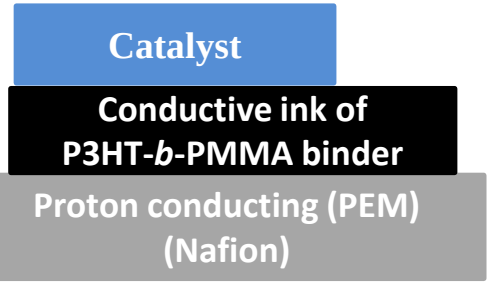
Part II; The P3HT System for H_2 Evolution

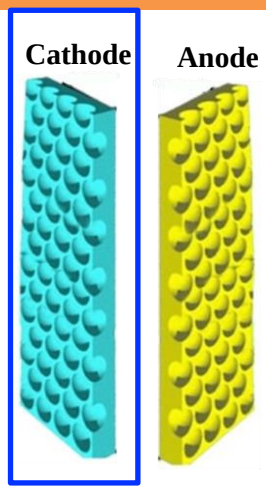


Next step, use as a binder

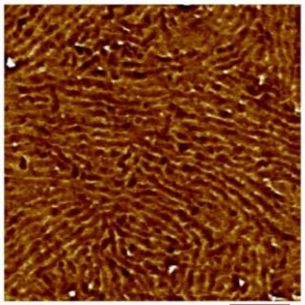


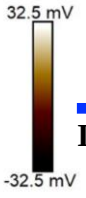
P3HT-Co catalyst



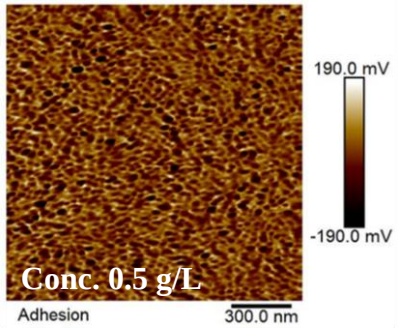


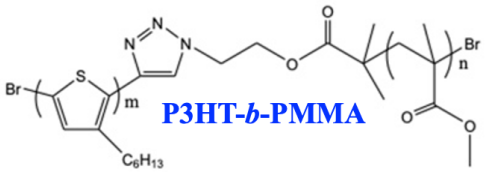
MW annealing 30 W, 1 min



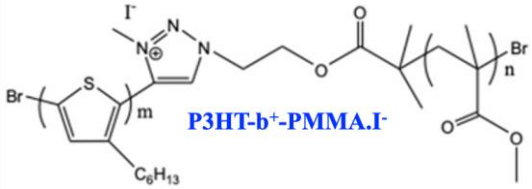


Introducing charge

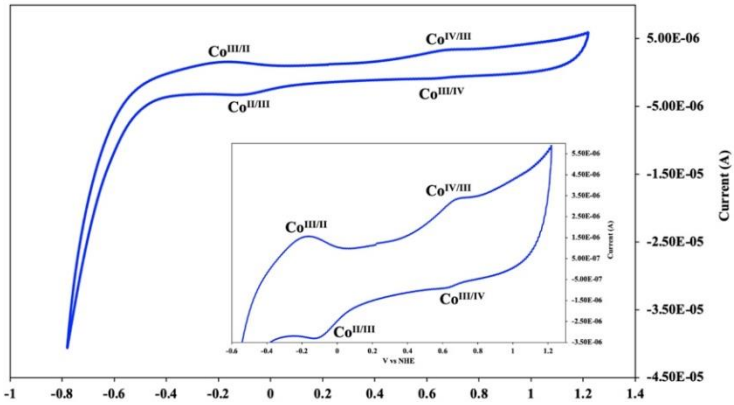




P3HT-*b*-PMMA



P3HT-b⁺-PMMA.I⁻



The azido functionalized Co-catalyst kindly provided from the group of Dr. Vincent Artero (CEA), France.

PERSPECTIVES : The collaboration with scientists in Thailand and Europe

1. Develop nano porous honeycomb printed electrode of P3HT-based block copolymer films to create organic solar cell for portable device
2. Increase the conductivity of electrode by using carbon nanotube or silver particle.
3. Upscale printing to make numerous electrodes
4. Develop conducting electrode by using P3HT block copolymer as binder and P3HT-Co as catalyst
5. Create a real device consisting of MBM/Ru anode and P3HT-*b*-PMMA/Co cathode

Acknowledgements for Ph.D. study

I would like to express my deepest appreciation to:

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Nicolas BENOOT
Coste MAWELLE LOUDY
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…

IPREM
Institut des sciences analytiques et de physico-chimie pour l'environnement et les matériaux

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Thank you