



# **Advanced materials for organic photovoltaics**

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# Previous and current OPV projects



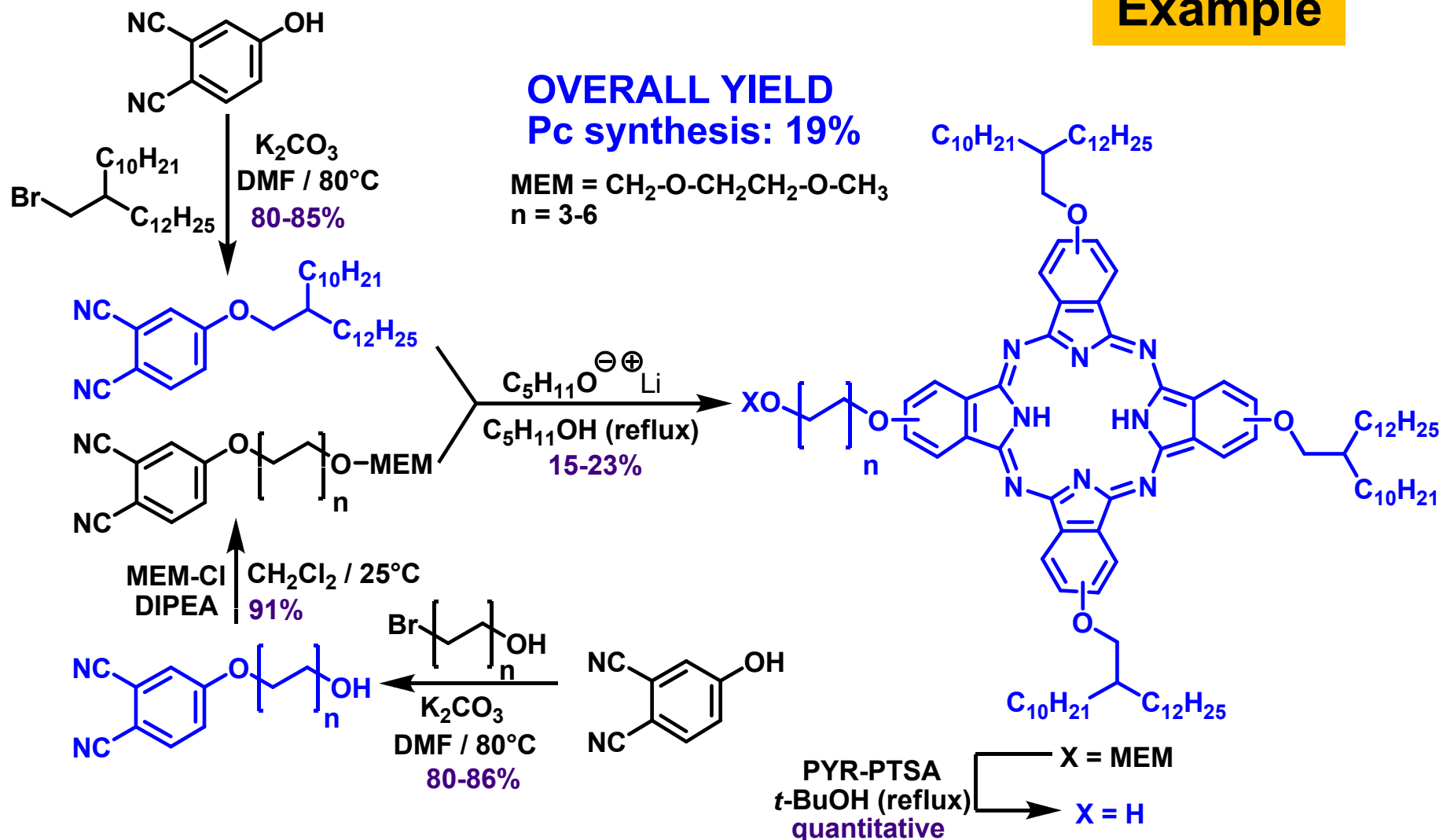
ACRONYM	FUNDING	TIME PERIOD
FP5-DISCEL	European Commission	2000 – 2003
FP6-NAIMO	European Commission	2004 – 2008
FP7-ONE-P	European Commission	2009 – 2011
SOLTEX	Belgian Federal Government	2003 – 2006
SOLPLAST	Walloon Region	2003 – 2006
MIRAGE	Walloon Region – Marshall Plan	2007 – 2011
SUNTUBE	Walloon Region	2009 – 2011
<b>SMART FILM</b>	<b>FEDER</b>	<b>2009 – 2013</b>

# Synthesis of semiconductors



Gram-scale synthesis of **Pc-C<sub>60</sub>** dyads

**Example**

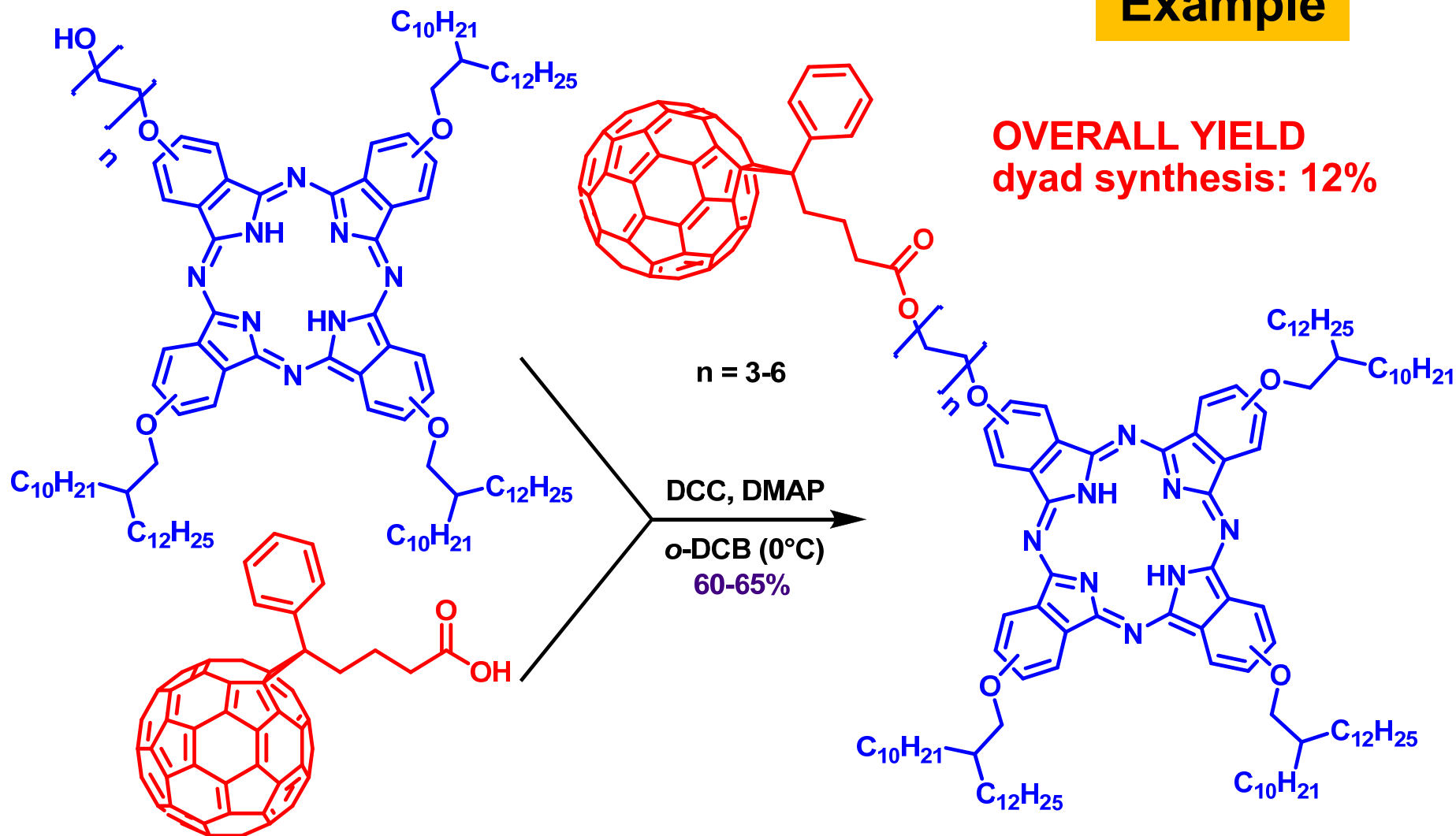


# Synthesis of semiconductors



Gram-scale synthesis of **Pc-C<sub>60</sub>** dyads

**Example**

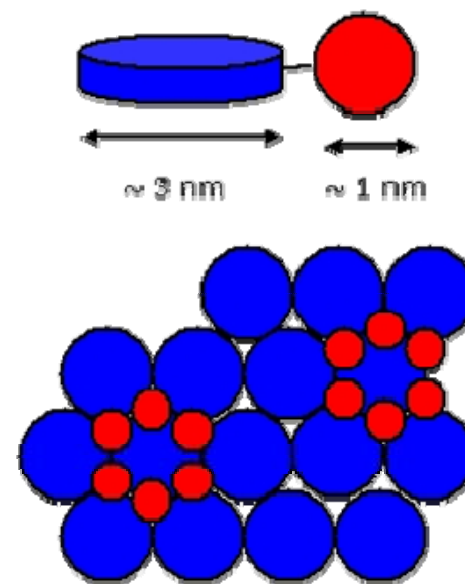
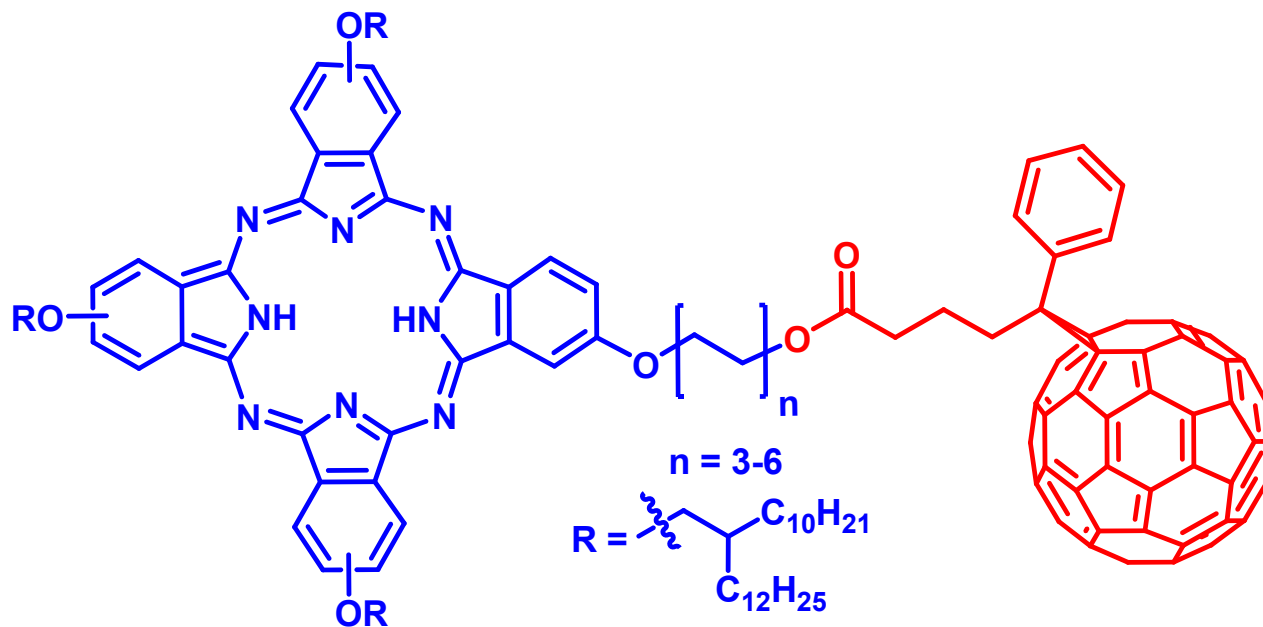


# Synthesis of semiconductors

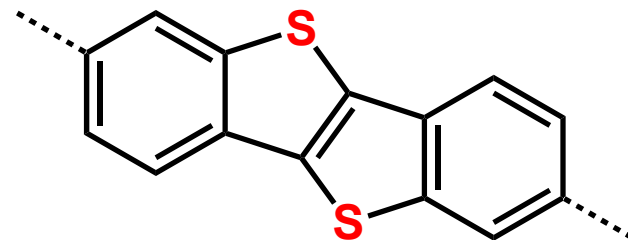
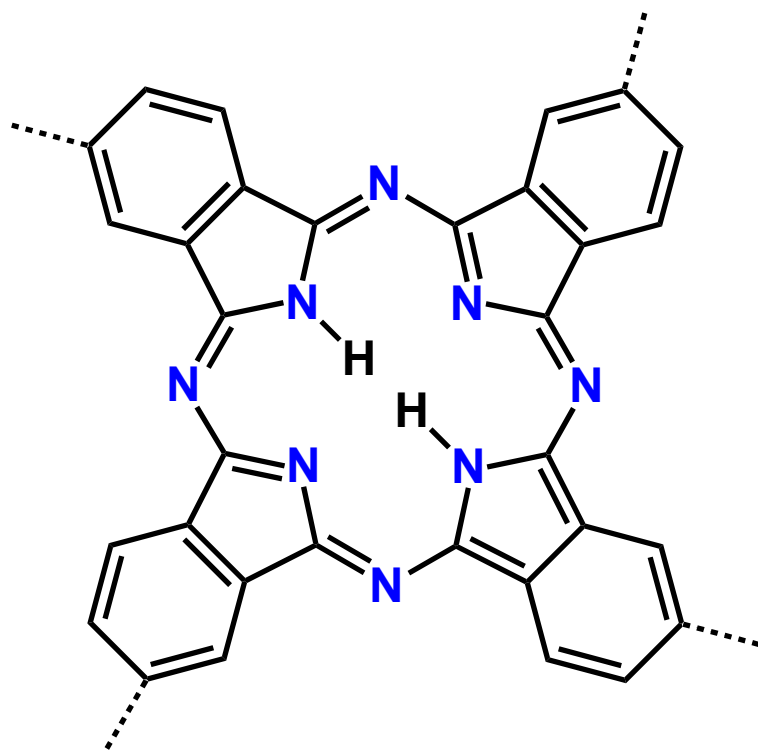
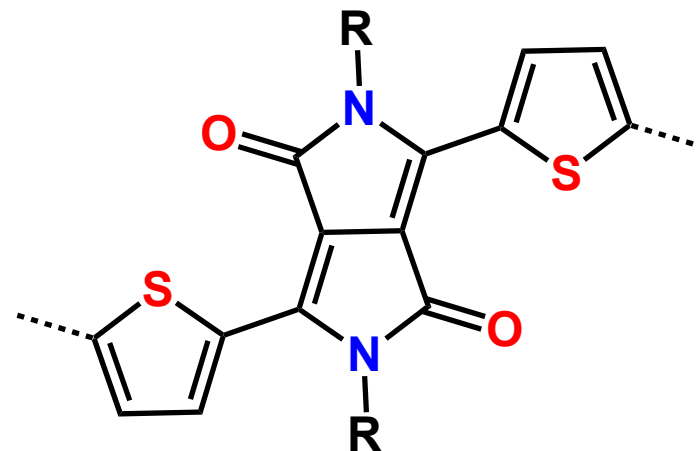
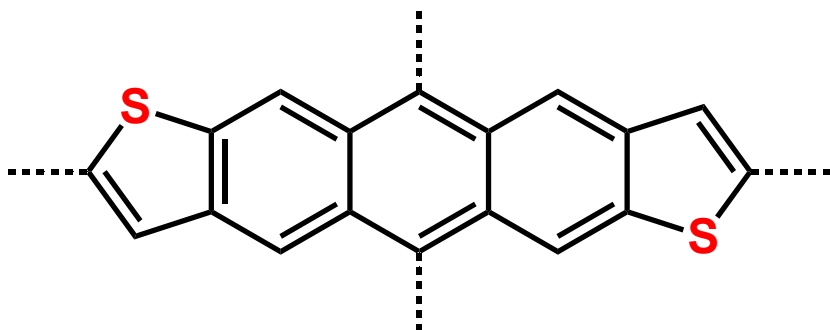


Structural characterization

## Example



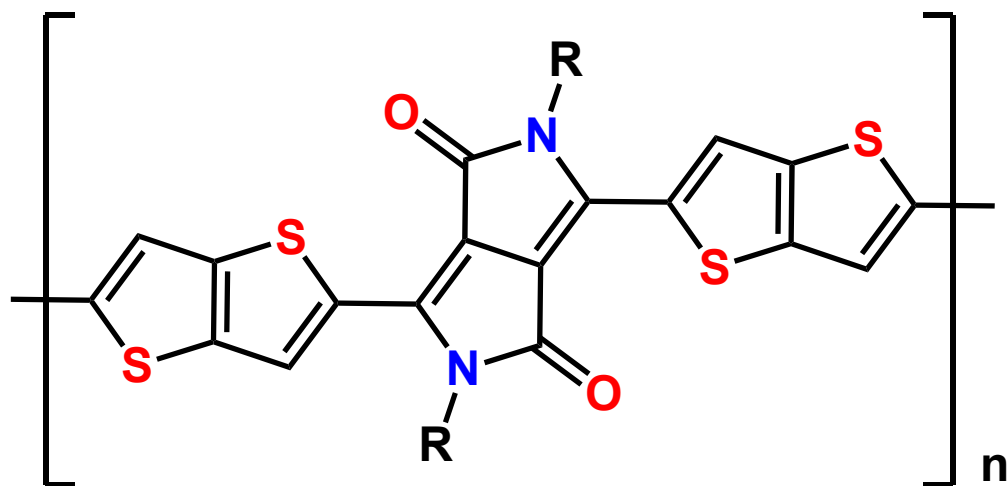
# Other chemical structures



# Recent achievements



Bulk heterojunction with **5.4% efficiency**, *J. Am. Chem. Soc.* **2011**, 133, 3272-3275



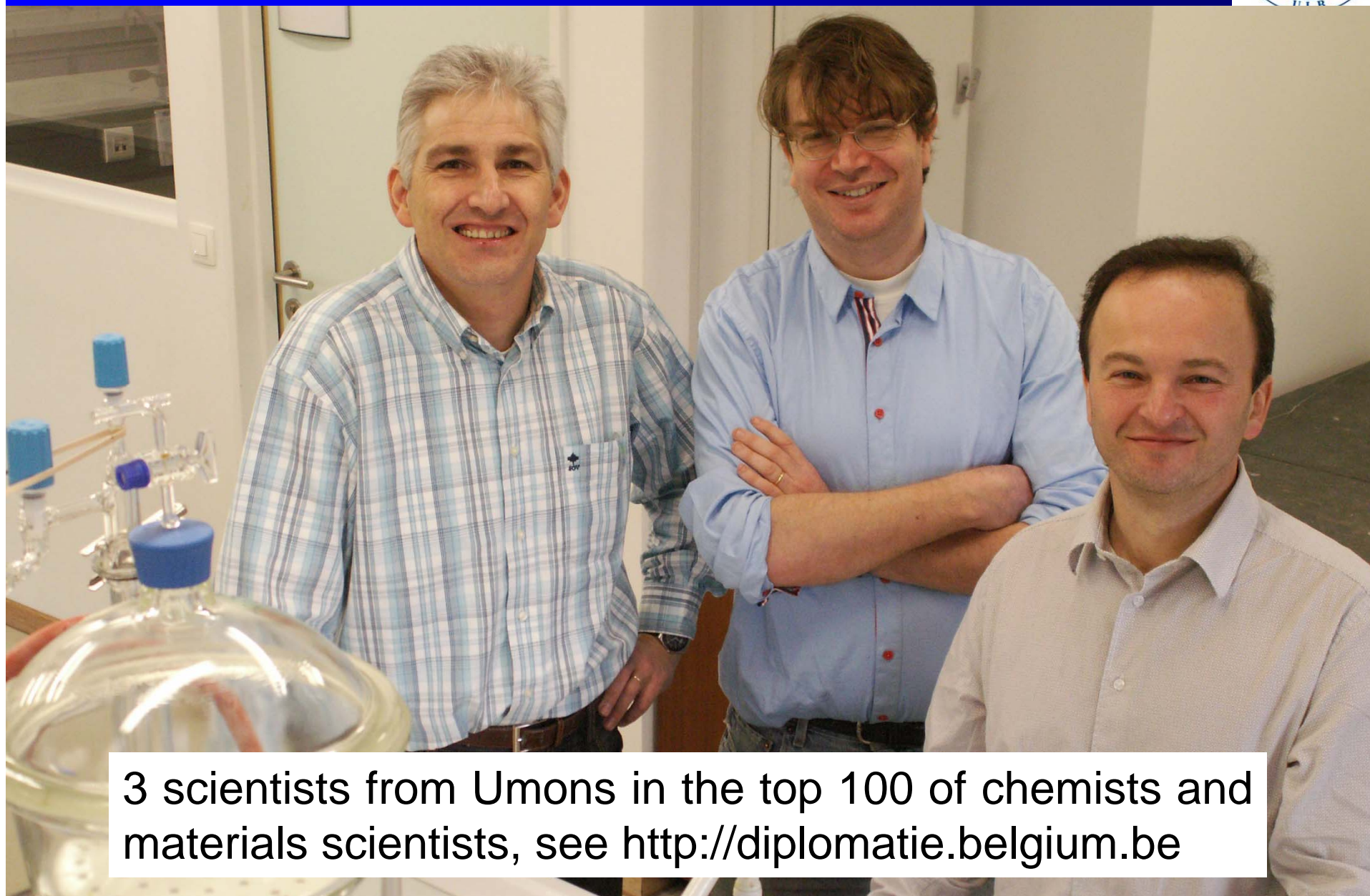
 **BASF**  
The Chemical Company



Prof. Iain McCulloch

**Imperial College**  
London

# Close collaborations in Wallonia



3 scientists from Umons in the top 100 of chemists and materials scientists, see <http://diplomatie.belgium.be>



# Take home message

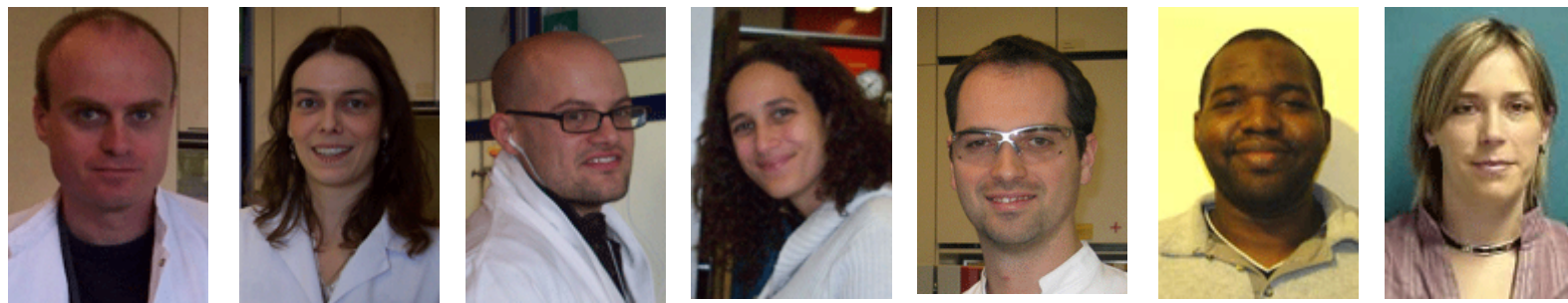


Invest in « **speciality chemicals** »  
because it is nowadays **the most  
profitable business in the world**  
(Pharma is 2<sup>nd</sup>) and because their  
will be **no sustainable future  
without new materials!**

# Thank you to my coworkers



- Staff of 18 researchers : 10 postdocs, 3 Ph.D. students, and 2 Ma. students, 2 technicians.



# “ONE-P” Project

**Coordinator : Prof. Yves Geerts,  
Polymer Chemistry CP 206/1,  
Bd du Triomphe,  
1050 Bruxelles,  
ygeerts@ulb.ac.be.**



**To create the advanced materials and technologies needed for the development of a sustainable organic electronics and photonics industry in Europe.**

**[www.onep.eu](http://www.onep.eu)**

**Partners : 20 research institutions + 8 companies**

**Budget : € 26 500 000**

**Hired staff : ~ 70 researchers**

**Permanent staff : ~ 120 researchers**

**Start date : January 1, 2009**

**End date : December 31, 2011**

**Production : 12 patents, over 200 publications**

**Coherent work plan : fully implemented, > 100 deliverables**



Organic Nanomaterials for Electronics and Photonics

Developing the Next Generation  
Organic Nanomaterials for  
Electronics and Photonics

## 100 researchers at the 12 months meeting in Bologna



*Developing the Next Generation of Organic Nanomaterials  
for Electronics and Photonics*



**Thank you for your  
kind attention 😊**

