

Polymeric Materials for Solar Technologies

**Gernot M. Wallner,
Reinhold W. Lang,**

October, 2010

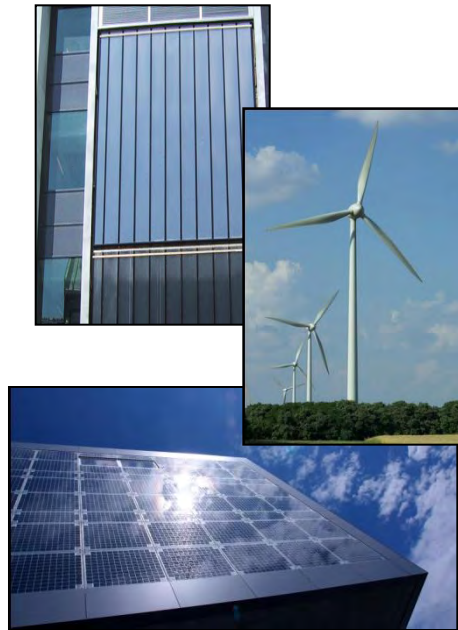


Research Profile: 4 major areas of technology orientation

Water (supply, disposal)



Energy (solar, wind, water)



Mobility (ultra-light vehicles)



“Biogenic“ Plastics (renewable resource base)

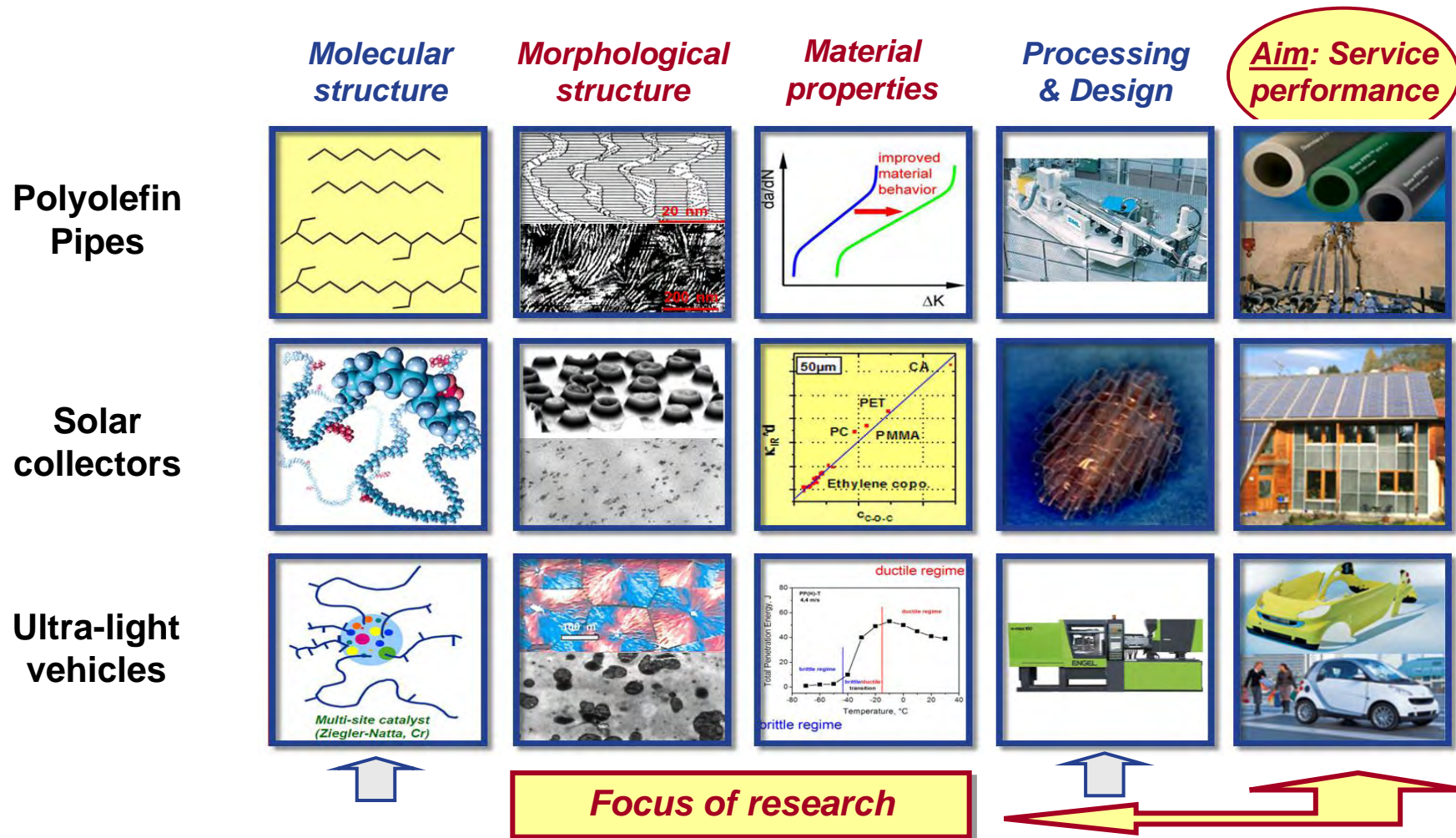


The Millenium Development Goals (MDG) - United Nations, 2008

- **Water:** ~ 1 bill. people without access to clean and sufficient water
~ 2.5 bill. people without proper sanitation
- **Energy:** > 2 bill. people with insufficient access to energy

Research Profile: Aims and methodology

Scientific Approach: msp^3 -relationships
(material structure-property-processing-performance)



Approved Research Projects - Polymeric Materials for Solar Technologies

Funding program *Neue Energien 2020* (Climate and Energy Fund, FFG)

„Solar thermal Systems based on Polymeric Materials (SolPol-1/2)“

Part 1: Scientific and Methodological Aspects and Economical and Ecological Impact Assessment

Part 2: Development of Collectors and Plastics-Compounds

Duration: 07/2010 – 06/2013 (3 years)

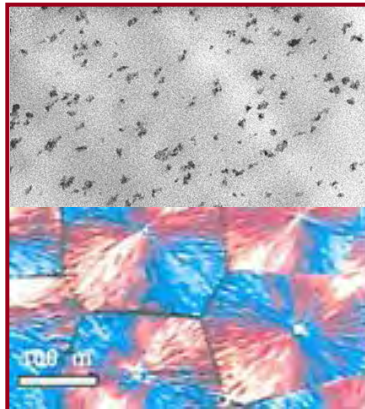
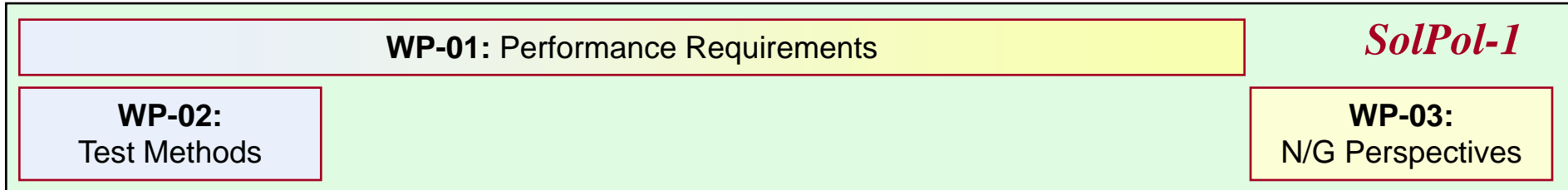
Budget *Part 1*: € 0,73 Mio. (approved)

Budget *Part 2*: € 4,2 Mio. (approved)

9 Scientific partners (4 JKU Institutes)

10 Company partners

SolPol-1/2 – Content and Work Packages



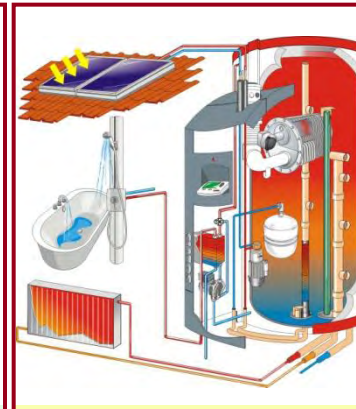
Materials



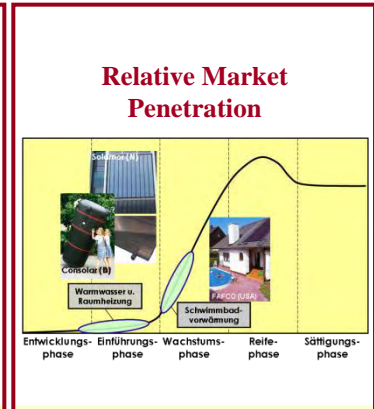
Processing Technologies



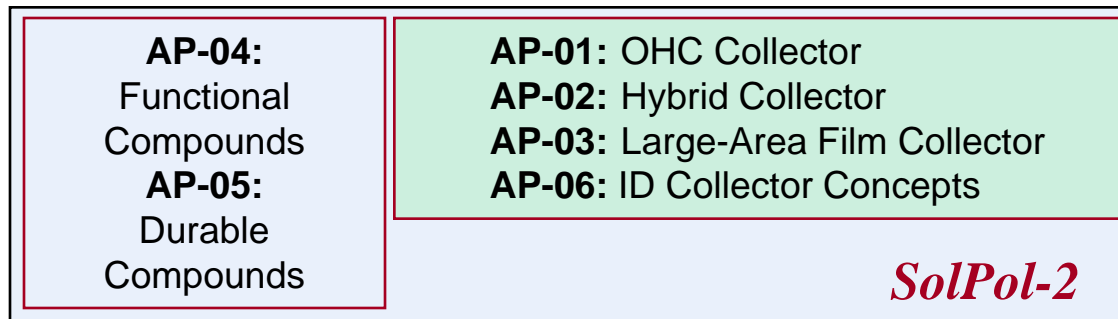
Subcomponents, Components



Solar-thermal System



Perspectives and Effects



SolPol-1/2 – Partnership Structure

9 Scientific Partners

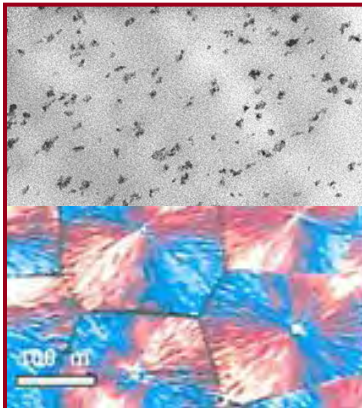
JKU-CTO
JKU-IAC
JKU-ICP
JKU-IPMT

JKU-IPIM

AEE-INTEC
JKU-IPIM
JKU-IPMT
UFG-ID
UIBK-EGEE

AEE-INTEC
UIBK-EGEE

AEE-INTEC
JKU-IPMT
WIFO
UIBK-EGEE



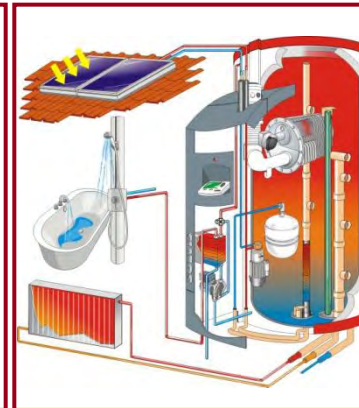
*Materials,
Semi-finished Prod.*



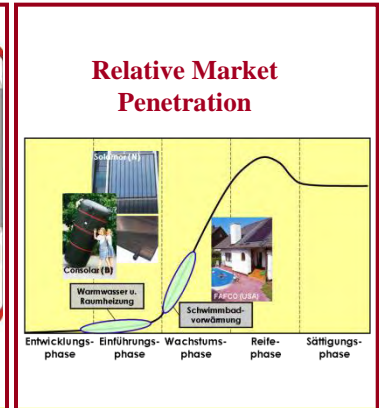
*Processing
Technologies*



*Subcomponents,
Components*



*Solar-thermal
System*



*Perspectives and
Effects*

AGRU
APC
Borealis
KE KELIT

AGRU
ENGEL
Greiner
Lenzing Plastics
Schöfer

ENGEL
Greiner
Schöfer
Sunlumo
SUN MASTER

10 Company Partners

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Submitted Research Projects - Polymeric Materials for Solar Technologies

Funding program *Neue Energien 2020* (Climate and Energy Fund, FFG)

„Solar-electrical Systems based on Polymeric Materials: Novel Polymeric Encapsulation Materials for PV Modules (SolPol-3)“

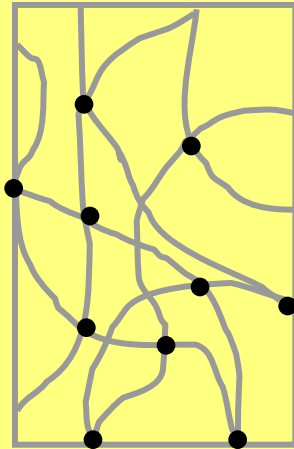
3 Scientific partners (2 JKU Institutes)

7 Company partners

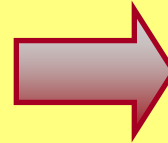
SolPol-3 – Main Objectives

Development of novel polymeric encapsulation materials

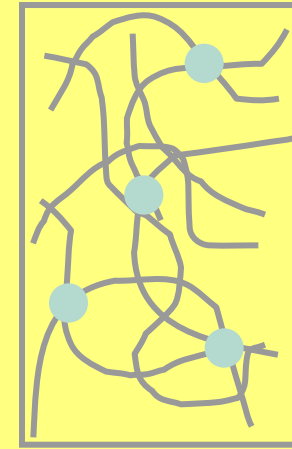
Elastomer
(e.g., EVA)



covalent
cross-links



Thermopl.
Elastomer



thermoreversible
cross-links

Improved production process

- shorter lamination cycle times
- continuous production (roll to roll)
- improved performance

