



Encapsulant materials and degradation effects - Requirements for new materials and research trends

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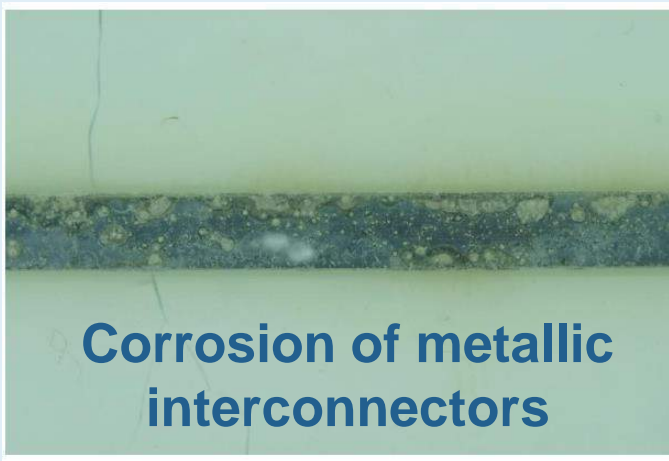
Beijing, 29.-30.11.2014



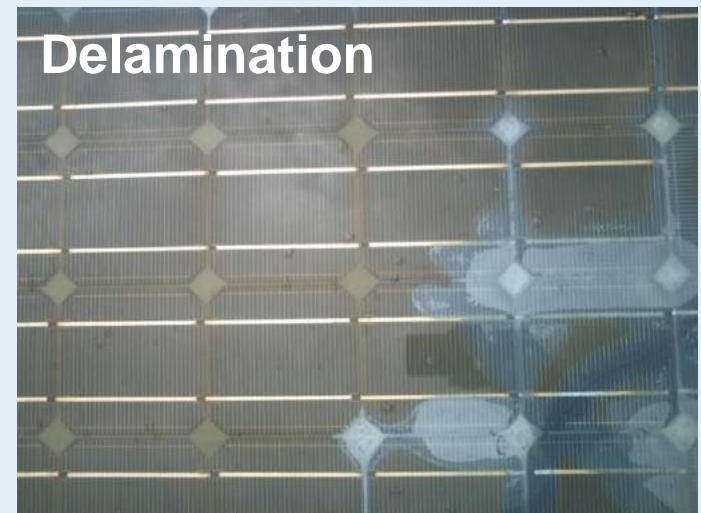
PV module degradation modes



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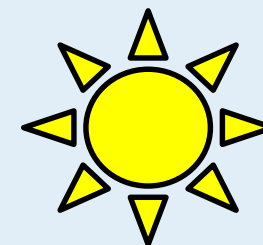
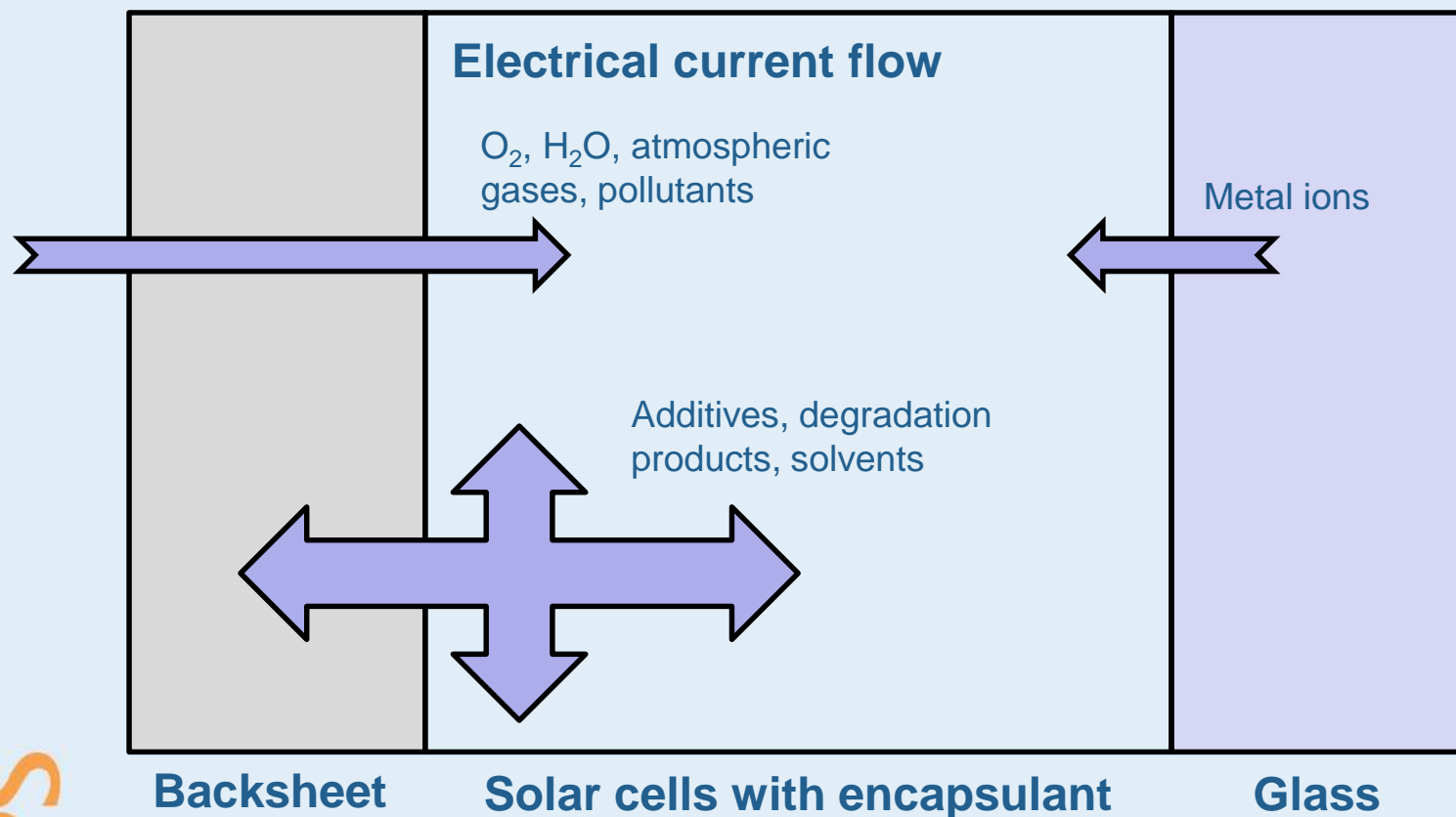


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PV module degradation – material interactions



Light

PVPS

→ Interactions lead to unintended degradation effects: Yellowing, corrosion, potential induced degradation, snail trails



Development of new materials

- Technical Challenges
 - Thermo-plastic material – no chemical cross-linking
 - Thermo-mechanical stability – no creep
 - Prevention or reduction of chemical and physical degradation processes
 - Spectral selectivity for enhanced light yield
 - Good adhesion to glass, solar cells and backsheet films
 - High weathering stability for lifetimes > 25 years
 - New accelerated tests and characterization tools for fast and reliable assessment of new materials

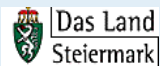
→ **Better understanding of PV module and material degradation processes is a precondition for a successful development of new solar cell encapsulants**



Thank you for your attention!

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