Motivation for designing new PV materials

- Decrease of LCOE: Cost reduction and performance improvement
- Reduction and replacement of expensive materials
- Acceleration of manufacturing process
- Performance increase
- Production related cost decrease

- Sustainability and legal regulations
  - Ecodesign
  - Recyclability
  - Replacement of rare or harmful materials

- New technological requirements
  - Wafer technology
  - New cell and interconnection technologies
  - New module designs

Challenges for new materials and components

- Check of compatibility of PV module components will get more and more important in the future, as the variety on materials and components will grow

Adhesion - delamination:
- Adhesion to glass and solar cell strongly dependent of lamination parameters
- Surface treatment of backsheets usually optimized for adhesion to EVA but not alternative encapsulants

Backsheet yellowing: Migration of additives into backsheet -encapsulant interface are main cause for backsheet yellowing

Corrosion: Broad variety of new ribbon materials, interconnection technologies and encapsulant films

Constant need for adaption of test methods and standards