

# BASF SE: The Verbund Site Ludwigshafen – The world largest integrated chemical complex (basf.com)



Organisation:

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# PPP: Factories of the Future

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## Possible Topics, which might be of BASF interest, if you are looking for a chemical company in your EU-project proposal:

- **NMP.2011.1.4-1**      **Large-scale green and economical synthesis of nanoparticles and nanostructures**
- **NMP.2011.3.2-1**      **Modelling and control of intensified process systems**
- **FoF.NMP.2011-1**      **The EcoFactory: cleaner and more resource-efficient production in manufacturing**
- **FoF.NMP.2011-4**      **High tech solutions in the production processes for customised green, safe and healthy consumer products**
- **FoF.NMP.2011-6**      **Manufacturing chains for nano-phased components and/or coatings**

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# PPP: Factories of the Future

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## BASF Polymer Research objectives:

### New concepts for polymer production

- **competitive small capacity plants**
  - **low specific invest despite small capacities**
- **process design for accelerated time to market**
  - **faster to market via standardized equipment**
- **process design for standardized equipment**
  - **equipment in standardized functional modules**
  - **enable e.g. decentralized production**
- **plug and play concepts**

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# PPP: Factories of the Future

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## Project Partner Profiles and their Role in the Project

### Academia

- Academic partners with new scientific or technical approach
- Coordinator for the EU-project

### Industry

- Additional partners along the value chain from academia to application

### BASF

- Contributing the chemical, physical or production related project targets based on polymer aspects

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## NMP.2011.3.2-1 Modelling and control of intensified process system

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### **Objectives:** Precise control of local process conditions

- operation under less stable regimes
- appropriate modelling
  - develop modelling frameworks
    - support the systematic generation of models
    - software tool boxes and libraries
  - model reuse, model decomposition and model aggregation
    - model generation from a library of multi-scale models;
  - coupled models for polymer processes
    - comprising kinetics, thermodynamics, equipment,
    - mixing CFD (computational fluid dynamics)
  - NMPC (non linear model predictive control) techniques based on deterministic models for polymer quality
  - systematic model validation
- development of robust on-line monitoring,
  - identify the critical process parameters
  - optimisation in reaction, isolation and formulation processes
- sensor technologies for measuring critical process parameters
  - robust hard sensors
  - soft sensors for product quality

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## Expected results:

- validate models and new analytical tools and sensors under real process conditions
  - reduction of by-products
  - increased process efficiency by at least 20%
  - transferable equipment / control models on all scales
    - same equipment in lab for product / process development
  - competitive continuous plants for small capacities

## NMP.2011.3.2-1 Modelling and control of intensified process system

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### Project Partner Profiles and their Role in the Project

#### Academia

- Academic partners with new scientific or technical approach
- Coordinator for the EU-project

#### Industry

- Additional multidisciplinary partners along the value chain from academia to application ( software, sensor company, ...)

#### BASF

- Contributing the chemical, physical or production related project targets based on polymer aspects
- Possibility of testing in an industrial environment

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# PPP: Energy-efficient Buildings Lightweight Composites

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## Possible Topics, which might be of BASF interest, if you are looking for a chemical company in your EU-project proposal:

- **EeB.NMP.2011-3**      **Energy saving technologies for building envelop retrofitting**

### **BASF Polymer Research objectives:**

#### **Applications/Markets**

- **light organic/inorganic hybrid construction materials**
- **[wind turbines**
  - **materials for tower construction**
  - **materials for rotor blade construction**
- **next generation electric vehicle**
- **Aerospace]**

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# PPP: Energy-efficient Buildings Lightweight Composites

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## BASF Polymer Research objectives:

### Technical content/scope

- light organic/inorganic hybrid construction materials
  - with lower heat transfer, high heat inertia and improved mechanical properties
- sandwich materials from fiber reinforced thermoplastic cover sheets and foam cores
- novel efficient manufacturing process for fiber reinforced structural parts
  - low cost processes
    - for oriented long fiber reinforced polymer composites
    - for sandwich materials
- new lightweight design principles
- system solutions to enable lightweight construction
- adhesives for [transportation or] construction with new assembling process
- smart combination with material solutions

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# PPP: Energy-efficient Buildings Lightweight Composites

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## Project Partner Profiles and their Role in the Project

### Academia

- Academic partners with new scientific or technical approach
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### Industry

- Additional partners along the value chain from academia to application

### BASF

- Contributing the chemical, physical or production related project targets based on polymer aspects

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# NMP.2011.1.1-1 Smart and multifunctional packaging concepts utilizing nanotechnology

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## BASF Polymer Research objectives:

### Technical content/scope:

- printed organic electronics integrated into smart packaging
  - for added value by multifunctional components
  - active materials for radio frequency and solar cell components
  - using nanocoatings for thin film structures
  - for interactive components
  - using low cost printing technologies, such as roll-to-roll printing;
  - integrating the device in the paper board production process with minimal additional steps
  - avoiding food contact by sealing
- ensure safety for the full product life cycle
  - meet the demands on packaging recyclability

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# NMP.2011.1.1-1 Smart and multifunctional packaging concepts utilizing nanotechnology

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## Applications/Markets:

- target end-use demonstrations
- benefits to consumers in terms of improved performance, safety and security of products
- as traceable indicator for perishable goods

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# NMP.2011.1.1-1 Smart and multifunctional packaging concepts utilizing nanotechnology

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## Project Partner Profiles and their Role in the Project

### Academia

- Academic partners with new scientific or technical approach
- Coordinator for the EU-project

### Industry

- Additional partners along the value chain from academia to application
  - active material developers and suppliers
  - integrators and product developers
  - paper board producer

### BASF

- Contributing the chemical, physical or production related project targets
  - supplying state of the art active materials for transistor and solar cell components
  - extensive know-how on the applicability and scalability of the materials
  - concentrating on the inks and coating process of the electrical device

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