



# Transatlantic Opportunities for research collaboration with FP7

**Dr. Astrid-Christina Koch  
Science Counselor**

**EU Delegation to the United States  
in Washington**





EUROPEAN  
COMMISSION

Community research

# Outline

- Innovation Union
- EU/US S&T Agreement
- 7<sup>th</sup> Framework Programme
- Cooperation Programme
- People Programme
- Examples of Projects
- How to participate





EUROPEAN  
COMMISSION

Community Research

# EU-U.S. Science & Technology Agreement

- 1998 EU – U.S. Science and Technology Agreement was signed
- 2003 Renewal of S&T Agreement for five years
- 2009 Renewal of S&T Agreement  
All Themes of FP7 to be included
- Joint Consultative Group (JCG) is responsible for deepening the intergovernmental cooperation through high-level meetings

# EU is building an Innovation Union

A cornerstone of **Europe 2020** strategy

Three aspects:

- **Globalisation** of knowledge production and innovation capacities
- Impact of the **crisis** on public and private finance, survival of innovative SMEs
- **Major challenges** to address with reduced means

→ *Innovation emergency!*



EUROPEAN  
COMMISSION

EU - BUILDING AN  
INNOVATION UNION

# Globalisation of knowledge

## Declining EU share of knowledge production

*Evolution of World R&D expenditure in real terms, PPSE at 2000 prices and exchange rates, 1995-2008*

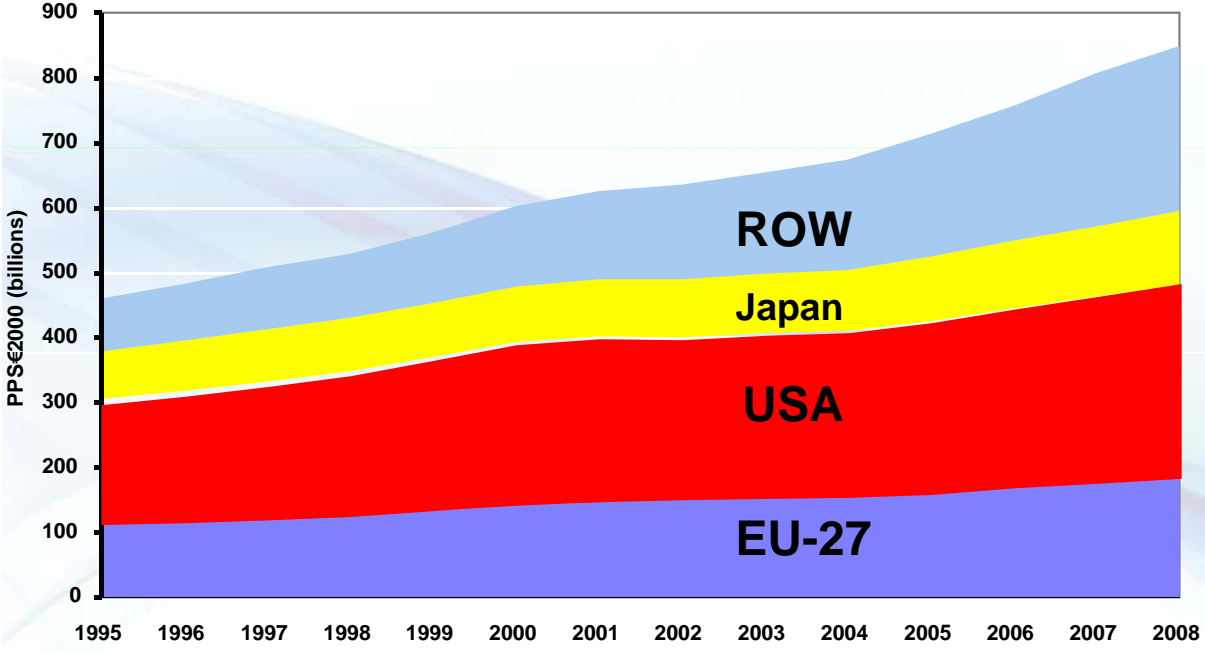
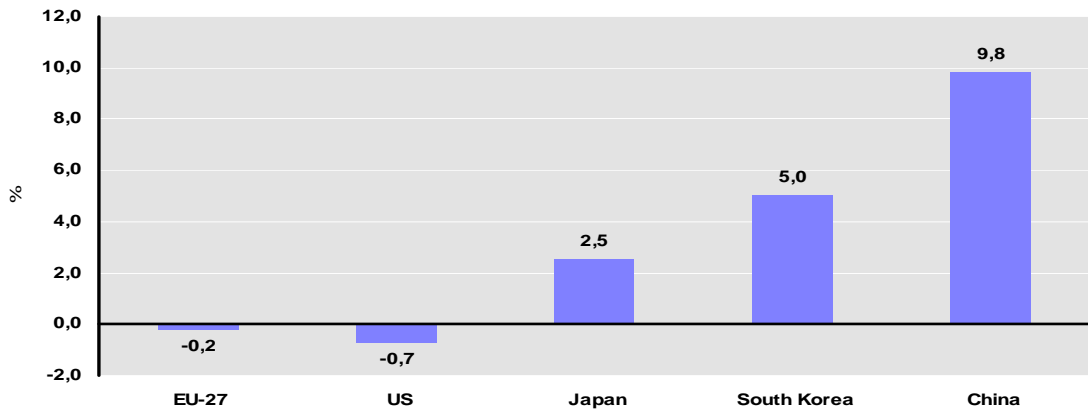


Figure Private Expenditure on R&D as % of GDP <sup>(1)</sup> - average annual growth (%) in the major economies, 2000-2007 <sup>(2)</sup>

## Stagnating business R&D

*Average annual growth as % of GDP, EU-27, US, Japan, South Korea & China, 2000-2007*



EUROPEAN COMMISSION

EU - BUILDING AN INNOVATION UNION

# Globalisation of knowledge

- Develop **world-class excellence**
- **Attract investment** through better support and framework conditions
- Establish **strategic cooperation with world partners**



EUROPEAN  
COMMISSION

EU - BUILDING AN  
INNOVATION UNION



EUROPEAN  
COMMISSION

Community Research

# The 7th EU Framework Programme (2007-2013)





EUROPEAN  
COMMISSION

Community Research

# International Cooperation in FP7

## Cooperation Programme

Grants for participation in research consortia and support actions (open to international partners in all themes)

Includes Specific International Cooperation Actions (SICA)

## Ideas Programme

Grants for basic research to individuals or a team of individuals (including foreign researchers based in the EU)

## People Programme – Marie Curie Actions

Grants for incoming and outgoing fellowships (to EU)  
International Research Staff Exchange Scheme (IRSES)

## Capacities Programme

Facilitating bilateral and bi-regional international cooperation and coordinating EU member state collaboration with third countries







EUROPEAN  
COMMISSION

Community Research

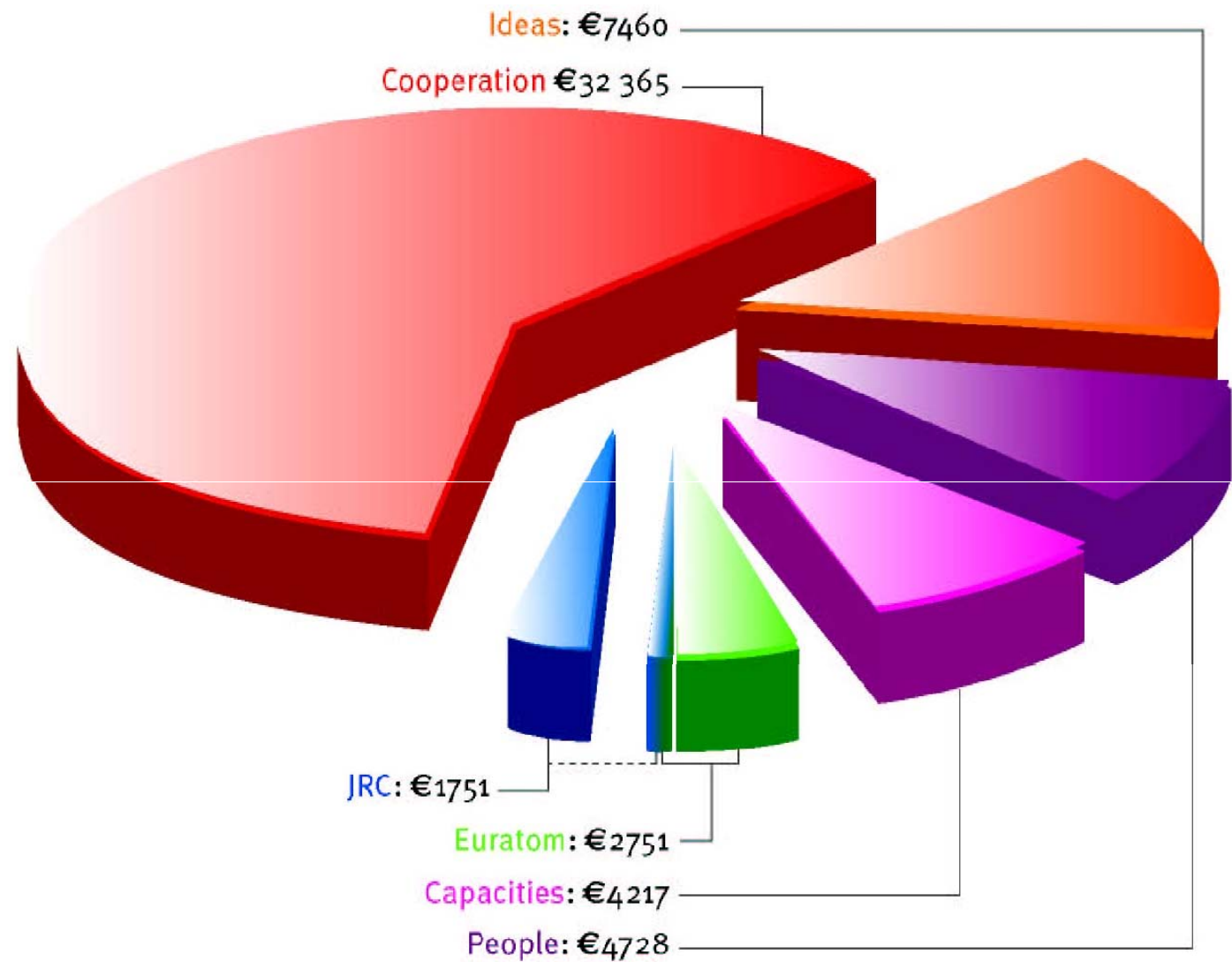
# Mechanisms for Cooperation

- **Coordinated Calls / Joint solicitations**
- Cooperation based on reciprocity
- Joint projects by: Coordinated Calls /Dedicated Calls  
Twinning/Clustering
- Task forces
- Joint organisation of workshops and seminars
- Exchange of scientists and technical experts
- Exchange of evaluators for peer review
- Network building though ERA-LINK USA (European Researchers Abroad ) under the umbrella of EURAXESS





## FP7 Indicative breakdown (€ million)





EUROPEAN  
COMMISSION

Community research

# WP 2011

- The 7th Framework program is open to participants from outside Europe.
- Partners from the United States are welcome
- US participants are generally expected to bring own funding (e.g. via NSF), but may get funding by the Commission
- Annual call is currently open





EUROPEAN  
COMMISSION

Community research

# FP7 | Cooperation

## bringing together our best talents to tackle the following areas:

- Health;
- Food, Agriculture and Biotechnology;
- Information and Communication Technologies;
- **Nano-sciences, Nano-technologies, Materials and new Production Technologies;**
- Energy;
- Environment (including Climate Change);
- Transport (including Aeronautics);
- Socio-economic Sciences and Humanitie
- Space;
- Security.





EUROPEAN COMMISSION

Community Research

# NMP Strategic Framework

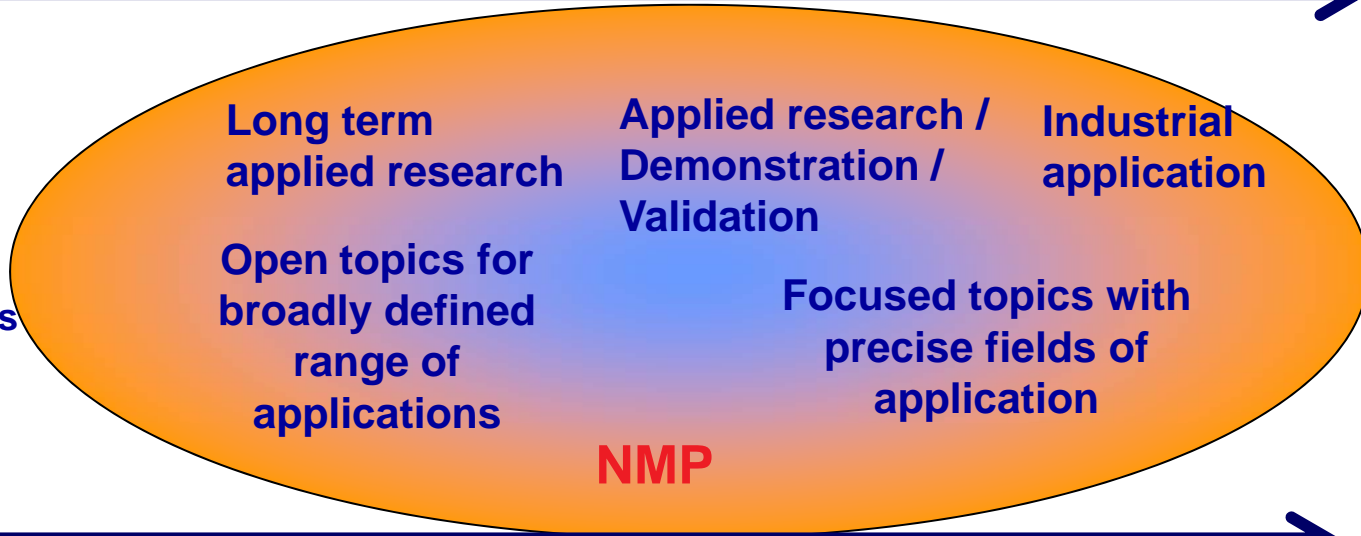
## NMP Life Cycle Strategy



Basic research

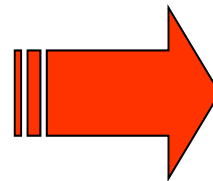
ERC

Future and Emerging Technologies



Market

Breakthrough technology  
Enabling technologies



Step change  
Technological innovation





EUROPEAN COMMISSION

Community Research

# NMP Strategic Framework

## Technology coverage

### Upstream

Technology Development  
Multi-sectoral Potential

Small / Medium scale projects

### Downstream

Technology Integration  
Multi-sectoral Benefits  
Cross / Single-sector Integration

Large scale projects



1. Nanosciences & Nanotechnologies

2. Materials Technologies

3. Production Technologies

NMP

4. Integration





EUROPEAN  
COMMISSION

Community Research

# Outline of the NMP 2011 Draft Workprogramme

NMP Programme (Theme 4) 5<sup>th</sup> call - 2011

**Activity 4.1 Nanosciences and Nanotechnologies** **13 topics**

**Activity 4.2 Materials** **11 topics**

**Activity 4.3 New Production Technologies** **3 topics**

**Activity 4.4 Integration** **8 topics**

**Recovery Package : Public Private Partnerships** **11 topics**

**LARGE; SMALL; SME and CSA type of proposals**



# NMP 2011 – 2013 - Indicative budget (Million €)

	2010	2011	2012	2013
<b>TOTAL*</b>	325.7	<b>450</b>	514.5	628.2
NMP Calls	198	<b>306**</b>	~ 310**	~ 314**
PPP FoF	60	<b>80</b>	100	160
PPP EeB	30	<b>40</b>	70	110
PPP Green cars	10	<b>10</b>	15	25
JTI FCH	9.6	<b>9.6</b>	9.6	9.5
Metrology	9.9	<b>7.0</b>	9.3	9.3
Other NMP activities	4.1	<b>?</b>	?	?
FP7 activities	4.1	<b>?</b>	?	?

\* Third countries + EFTA contribution NOT included

\*\* Including Other NMP and FP7 activities

15/10/2010







EUROPEAN  
COMMISSION

Community Research

# Content of Calls

## Activity 4.1 Nanosciences and Nanotechnologies

### 1.1 Maximising the contribution of Nanotechnology on sustainable development

1.1-1 Smart and multifunctional **packaging concepts** utilizing nanotechnology

LARGE

### 1.2 Nanotechnology for benefiting environment, energy and health

1.2-1 Development and up-scaling of innovative **photovoltaic cell processes** and architectures to **pilot-line scale** for industrial application, **Joint call with Energy**

LARGE

1.2-2 New targeted **therapy** using nanotechnology for **transport of macro-molecules across biological barriers**

LARGE

1.2-3 Active **nanomembranes/-filters/-adsorbents** for efficient water treatment with stable or regenerable low-fouling surfaces

SMALL



## Activity 4.1 Nanosciences and Nanotechnologies

### 1.3 Ensuring the safety of Nanotechnology

- 1.3-1 New methods for **measuring, detection and identification of nanoparticles** in products and/or in the environment SME
- 1.3-2 **Worker protection and exposure risk management strategies** for nanomaterial production, use and disposal SMALL
- 1.3-3 Intelligent **testing strategies for nanomaterials impact and exposure** – towards regulation and clustering of materials (support action) CSA
- 1.3-4 European Platform on Nano **Outreach and Dialogue (NODE)** (support action) CSA

### 1.4 Cross-cutting and enabling R&D

- 1.4-1 Large-scale green and economical **synthesis of nanoparticles and nanostructures** LARGE
- 1.4-2 Development of nano-scale **detection and control techniques for large area substrates** LARGE
- 1.4-3 Tools and methodologies for **imaging structures and composition** at the nanometre scale SME
- 1.4-4 Nanotechnology based **implantable and interfaceable devices** [for medical applications] SMALL
- 1.4-5 **Multiscale Modelling as a Tool for Virtual Nanotechnology Experimentation - coordinated call with Russia** [one project in each of three research areas: hybrid nanostructured elements; organic matrix nanocomposites; and biocompatible nanomaterials] SMALL





## Activity 4.2 Materials

### 2.1 Enabling Research and Development

2.1-1 Research and innovation for **advanced multifunctional ceramic materials**

SME

2.2-2 **Modelling of ultrafast dynamics in materials**

SMALL

### 2.2 Innovative materials for advanced applications

2.2-1 **Novel superconducting materials, architectures and processes for electro-technical applications**

LARGE

2.2-2 **Biomaterials for tissue engineering for age-related cancer and sensory organ diseases**

SMALL

2.2-3 **Materials for solid state lighting**

SMALL

2.2-4 **Novel materials for replacement of strategic or scarce raw materials (platinum group metals and rare earths)**

SMALL

2.2-5 **Development of advanced compatible materials and techniques and their application for the protection, conservation and restoration of cultural heritage assets – call jointly implemented with ENV**

SME

2.2-6 **Fundamental properties of novel superconducting materials - coordinated call with Japan**

SMALL





EUROPEAN  
COMMISSION

Community research

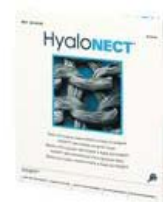
# Materials for Tissue Regeneration

## *Brite Euram (FP4) & Growth (FP5)*

Coordinator: Fidia Advanced Biopolymers, Italy



- AIM: therapy of wound healing and general surgery
- RE: scaffolds for tissue regeneration based on Hyaluronic Acid materials (Hyaff®)
- MARKET: Hyalonaect®, Hyalofast®, Hyaloglide®





EUROPEAN  
COMMISSION

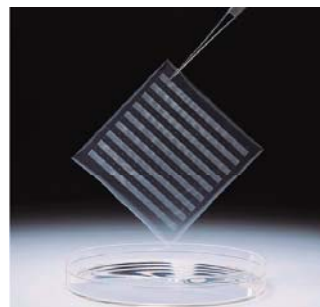
Community research

# Materials for skin substitution and repair (FP5 & FP6)

Coordinator: Fidia Advanced Biopolymers, Italy



- AIM: medicinal product able to treat burns and chronic ulcers (particularly diabetic foot and vascular ulcers)
- RE: biodegradable scaffolds for dermo-epidermal skin graft (artificial skin)
- MARKET: Hyalomatrix<sup>®</sup>, Laserskin<sup>®</sup>, Hyalograft<sup>®</sup>





EUROPEAN  
COMMISSION

Community research

## Materials for bone tissue replacement *SILKBONE (FP6 – SME)*

Coordinator: Oxford Biomaterials, United Kingdom



- AIM: materials able to replace cartilage for bone graft replacements.
- RE: novel, mineralized, silk-based biomaterial with innovative mechanical and biochemical features
- MARKET: SilkBone™ BSM, Spidrex ®
- SPINOFF: ORTHOX



<http://www.silkbone.org>





EUROPEAN  
COMMISSION

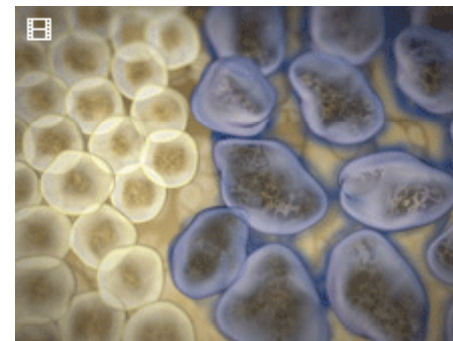
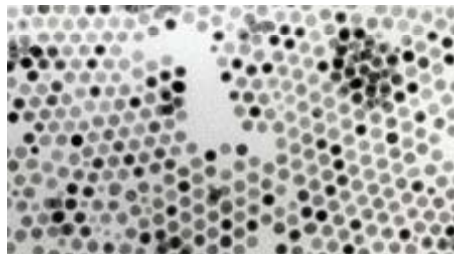
Community research

## Materials for cancer treatment *MEDITRANS (FP6) & MAGNIFYCO (FP7)*

MagForce Nanotechnologies AG, Germany

ON THE  
MARKET

- AIM: therapy of brain cancer
- RE: the world's 1<sup>st</sup> **nanoparticle**-based cancer treatment come to market
- MARKET: Nano-Cancer®, NanoTherm®, NanoActivator®



<http://www.magforce.de/english/home1.html>





EUROPEAN  
COMMISSION

Community research

## Materials for bioartificial pancreas

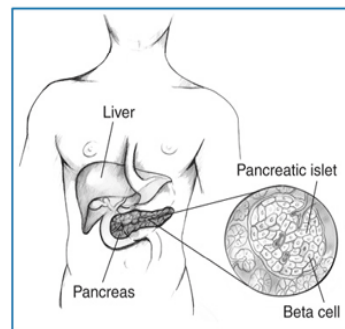
**BARB+ (FP6)**

Coordinator: Alain BELCOURT

(Centre européen d'étude du Diabète, France)

NEAR TO  
THE  
MARKET

- AIM: to develop a bioartificial pancreas which can be implanted into diabetics, freeing them from their regime of daily insulin injections and dietary restrictions
- RE: implants successfully tested in small animals and preliminary experiments performed in pigs.



[http://ec.europa.eu/research/research-for-europe/life-science-barb+\\_en.html](http://ec.europa.eu/research/research-for-europe/life-science-barb+_en.html)





EUROPEAN  
COMMISSION

Community research

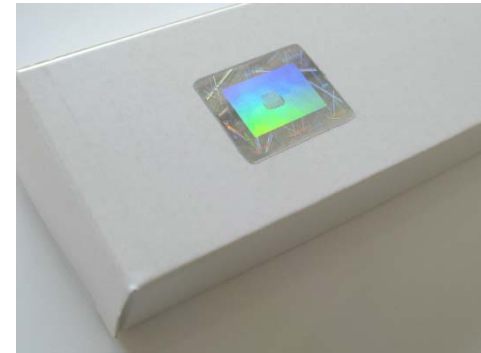
## Materials for electronic labels

*NAIMO (FP6) – ONE-P (FP7)*

Coordinator: Yves GEERTS (ULB, Belgium)



- AIM: electronic labels that will benefit health, welfare, security and environment
- RE: Plastic electronics applications (flexible circuits, displays, sensors, solar cells etc)
- MARKET: Commercialization of semiconductors (Merck), production of SAMFET sensor (Philips)



<http://www.one-p.eu>



EUROPEAN COMMISSION

Community research



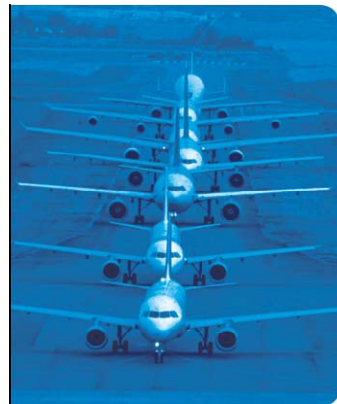
# Materials for automotive and aerospace engines

## INNOVATIAL (FP6)

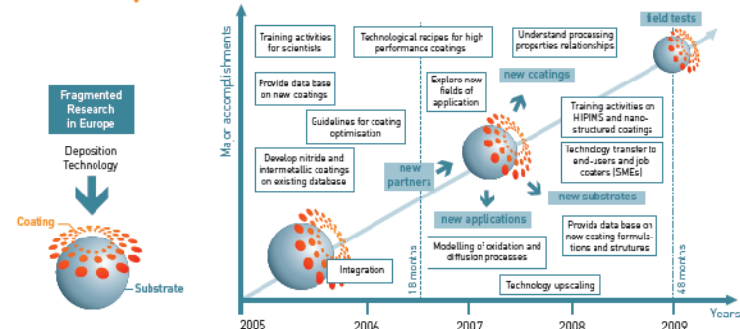
Coordinator: Christoph LEYENS

(Zentrum für Luft-und Raumfahrt e.V, Germany)

- AIM: light materials for automotive and aerospace engines with lower consumption of energy and less emissions
- RE: Ultra-performance coatings with nanoscale structure able to provide environmental protection at high temperatures (650-1000 °C)



### Road Map





EUROPEAN  
COMMISSION

Community research

# FP7 | Cooperation

## bringing together our best talents to tackle the following areas:

- Health;
- Food, Agriculture and Biotechnology;
- Information and Communication Technologies;
- Nano-sciences, Nano-technologies, Materials and new Production Technologies;
- Energy;
- **Environment (including Climate Change);**
- Transport (including Aeronautics);
- Socio-economic Sciences and Humanitie
- Space;
- Security.





EUROPEAN  
COMMISSION

Community research

# Areas of Environmental Research

- Climate change
- Natural hazards
- Environment and health
- Natural resources management
- Biodiversity
- Marine environment
- Land and urban management
- Environmental technologies including Cultural heritage
- Earth observation
- Assessment tools for sustainable development





EUROPEAN  
COMMISSION

Community research

# FP7 Cooperation Environment WP2011 Open calls:

Call name	Identifier	Deadline	Total budget	ENV contribution
Main Environment Call	FP7-ENV-2011	16 November 2010	€155.000.000 (2M for the JPI-RTD)	€155.000.000
Eco-innovation	FP7-ENV-ECO-INNOVATION-2011	16 November 2010	€ 50.000.000	€ 50.000.000
Energy-Efficient Buildings (PPP)	FP7-2011-NMP-ENV-ENERGY-ICT-EeB	2 December 2010	€85.000.000	€5.500.000
The Ocean of Tomorrow	FP7-OCEAN-2011	18 January 2011	€45.000.000	€16.000.000
Green Cars (PPP)	FP7-2010-GC-ELECTROCHEMICAL-STORAGE	2 December 2010	€25.500.000	€5.500.000
Advanced Materials	FP7-ENV-NMP-2011	16 November 2010	€12.000.000	€6.000.000

15/10/2010





EUROPEAN  
COMMISSION

Community research

# WP 2011 Environment

## The FP7-ENV-2011 Call

### Sub-Activity 6.1.1 Pressures on environment and climate

Indicative topics:

- ENV.2011.1.1.1-1 Improvement of the representation of critical climate processes in climate and Earth system models
- ENV.2011.1.1.2-1 The impact of atmospheric pollution on European land ecosystems and soil in a changing climate
- ENV.2011.1.1.2-2 Climate forcing of non UNFCCC gases, aerosols and black carbon
- ENV.2011.1.1.3-1 Vulnerability of Arctic permafrost to climate change and implications for global GHG emissions and future climate
- ENV.2101.1.1.5-1 Impacts of climate and land use changes in the Amazon

15/10/2010





EUROPEAN  
COMMISSION

Community research

## WP 2011 Environment

### Sub-Activity 6.4.1 Earth and ocean observation systems and monitoring methods for the environment and sustainable development

Indicative topics:

- ENV.2011.4.1.1-1 Integration and optimisation of information for building a Global Carbon Observing System
- ENV.2011.4.1.3-1 Inter-operable integration of shared Earth observations in the Global Context
- ENV.2011.4.1.4-1 Developing increased EO capacity for better agriculture and forestry management in Africa
- ENV.2011.4.1.4-2 Assessing the ecosystem status, including fisheries, within the Mediterranean marine coastal areas of North African countries

15/10/2010





EUROPEAN  
COMMISSION

Community research

# WP 2011 Environment

Sub-Activity 6.4.2 Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation

Indicative topics:

- ENV.2011.4.2.1-1 Efficiency assessment of environmental policy tools related to sustainability
- ENV.2011.4.2.2-1 Knowledge brokerage activities for engaging in a “beyond GDP” society
- ENV.2011.4.2.3-1 Community based management of environmental challenges
- ENV.2011.4.2.3-2 Sustainable Consumption and Production at the heart of green growth

15/10/2010







EUROPEAN  
COMMISSION

Community research

# Types of projects

- Small studies and coordination efforts:
  - Coordination and Support Actions (CSA)
  - With funding up to 100%
- Research and Development projects:
  - Collaborative Projects (CP)
  - Shared cost funding (50 or 75%)
- Special infrastructure projects:
  - Combined CP-CSA



EUROPEAN  
COMMISSION

Community research

# Participation opportunity

- On basis of annual calls for proposals by each of the different programme parts
- Published on web
  - Cordis (= general web repository of FP7 material)
  - FP7 Participants Portal
- Outlines specific areas and topics, the budget available, max. project size and further eligibility criteria/conditions



EUROPEAN  
COMMISSION

Community research

## How to participate and submit

- Projects have minimum EU partner rules
  - e.g. at least 3 independent partners from different EU Member States and Associated States
- Establish close link to a EU consortium wishing to submit a proposal



EUROPEAN  
COMMISSION

Community research

## Step 1 – submission of proposal

- Coordinator assembles team and takes lead
- All participants have to register with Unique Registration Facility (URF)
- Provides unique Participant Identification Code (PIC) for all FP7 proposals and participations
- Drafting and submission through online submission tool (Electronic Proposal Submission System – EPSS)
- Allows for joint text preparation
- Coordinator responsibility to submit before deadline



EUROPEAN  
COMMISSION

Community research

## Step 2 – Independent Evaluation

- Performed by an independent panel put together by the Commission
- Three steps – individual assessment, followed by consensus finding, and overall ranking to use available budget



EUROPEAN  
COMMISSION

Community research

## Evaluation criteria

- Criteria adapted to each funding scheme and each thematic area
  - specified in the work programme
- Three main criteria:
  - S&T Quality (relevant to the topic of the call)
    - *Concept, objective, work-plan*
  - Implementation
    - *Individual participants and consortium as a whole*
    - *Allocation of resources*
  - Impact
    - *Contribution to expected impacts listed in work programme*
    - *Plans for dissemination/exploitation*

CO<sub>2</sub> uptake by oceans:  
1st FP7 call



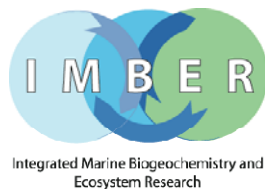
European Project on Ocean Acidification

[www.epoca-project.eu](http://www.epoca-project.eu)



Svalbard campaigns starting 2009:

➤ EPOCA focuses on areas where ocean acidification is thought to strike first, such as the *Arctic Ocean* and the *North Atlantic*, where water temperatures are low and the CO<sub>2</sub> dissolves more easily.



Large-scale integrating project, 27 partners from Europe, EC contribution of 6.5 M€, end April 2012

15/10/2010





[www.eu-highnoon.org](http://www.eu-highnoon.org)

- Assessment of impact of Himalayan glaciers retreat and changes of the Indian summer monsoon
- Recommendations for appropriate and efficient response strategies for adaptation
- Improvement of climate forecast skills at regional scale



Glacier Shorong, Nepal

Small/medium scale collaborative research project, 10 partners from Europe,  
EC contribution of 3.3 M€, end May 2012  
International partners: India, Japan







[www.micore.eu](http://www.micore.eu)

- ✓ Development / demonstration of on-line tools for reliable predictions of the morphological impact of storm events in support of civil protection mitigation strategies
- ✓ Analysis and mapping of storm related risks in sensitive European regions effects



Small/medium scale collaborative research project, 15 partners from Europe,  
EC contribution of 3.5 M€, end June 2011



**Flash floods and debris flows**  
**2<sup>nd</sup> FP7 call**



**Preparedness and risk management for flash floods and debris flow events**

[www.imprints-fp7.eu](http://www.imprints-fp7.eu)

- ✓ **Methods and tools for emergency agencies and utility companies**
- ✓ **Contribute to reducing loss of life and economic damage**
- ✓ **Developed systems tested on five areas; 2 located in the Alps, 3 in Mediterranean catchments**



Algier, November 2001  
Ca. 800 victims, one rainfall event

**Small/medium scale collaborative research project, 17 partners from Europe,  
EC contribution of 3.3 M€, end February 2012  
– International partners: South Africa**



**FUME: Forest fires under climate, social and economic changes in Europe, the Mediterranean and other fire-affected areas of the world**

- ✓ Fire prevention and management in the context of climate and socioeconomic changes
- ✓ Assessing future vulnerabilities
- ✓ New management of fire under extreme events
- ✓ Research will focus on old and new fire areas, the rural interface, covering main Mediterranean ecosystem types around the world.



**Large-scale integrating project, 21 partners from Europe, EC contribution of 6.1 M€, end December 2013**

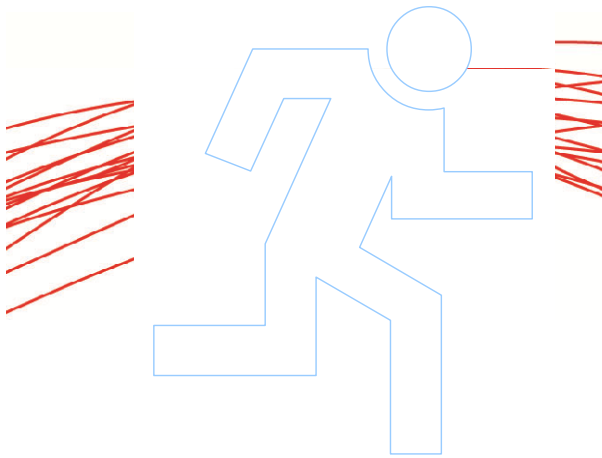
**International partners: Algeria, Australia, Chile, Morocco, South Africa, Tunisia, Turkey, United States**



**ESCAPE: European study of cohorts for air pollution effects**

**Main aims:**

- **Develop a methodology for assessment of long-term population exposure to air pollution (focused on fine particles, particle composition, and nitrogen oxides);**
- **Investigate exposure-response relationships in epidemiological studies to estimate risk for adverse perinatal health outcomes; risk of development of diseases such as asthma in children, respiratory disease in adults, cardiovascular disease and cancer.**



[www.escapeproject.eu](http://www.escapeproject.eu)

**Large scale integrating project, 24 partners from Europe, EC contribution: €5.9M, end June 2012**

**International partner: Taiwan**



# The 7th EU Framework Programme (2007-2013)





## FP7 | People

### Marie Curie Actions- Fellowships, Grants, Awards

#### 1. Initial training:

- *Networks for Early stage researchers*

#### 2. Life long training and career development:

- *Intra European Fellowships*
- *European Reintegration Grants*
- *Co-funding of national programmes*

#### 3. Industry dimension:

- *Industry-academia partnership and pathways*

#### 4. International dimension:

- *Outgoing fellowships*
- *International reintegration grants*
- *Incoming fellowships*
- *International staff Exchange Programmes (S&T, ENP)*

#### 5. Specific actions

*Such as: 'Researchers' Night'; Marie Curie Awards, ERA-More; networking of NCPs*



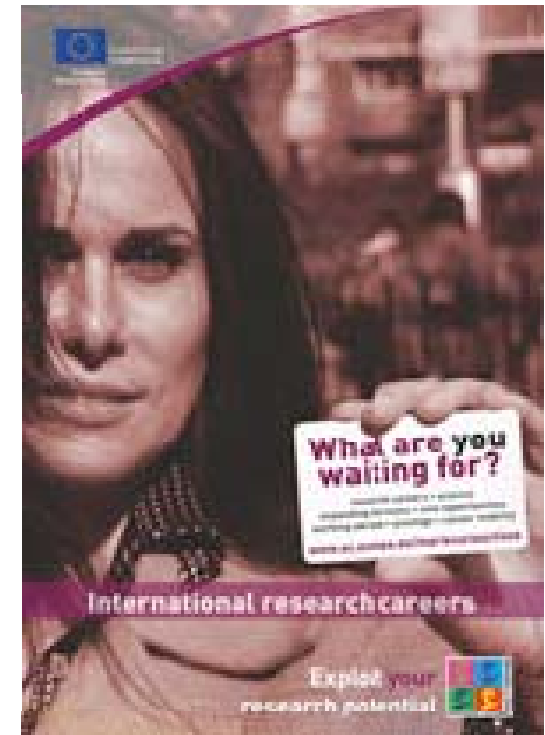


## Outgoing fellowships (from EU)

Career development/ life-long training for EU researchers :

EU outgoing individual fellowships, **to be trained in a third country institute or organisation**

- *at least 4 years after graduation*
- *Funding for up to 3 years in total*
  - -- with **1-2 years abroad**
- *To establish cooperation*
- *Based on a personal 'career development plan'*
- *Application together with the host of the return fellowship,*
- *mandatory return phase*

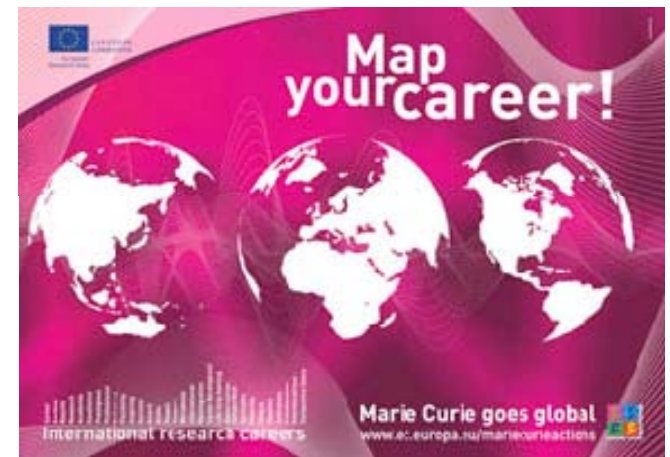




# Incoming fellowships

Incoming individual fellowships to attract top class researchers to EU and Associated States.

- *at least **four years** after graduation (post doc)*
- *to develop cooperation*
- *Proposal is submitted by the researcher **together with the host organisation***
- *For **1 to 2 years***
- ***Salary** plus contribution towards **research related costs***
- *Eventually a **1 year return** phase for researchers from ICPC*







## International Reintegration Grants

**Financial assistance to any EU or Associated States researchers who wish to return and find a position in Europe**

- *After having worked in research in a third country for at least three years*
- *grant of 2 to 4 years*
- *At least four years research experience after graduation*
- *Researcher applies together with the host organisation*
- *Flat rate of 25 000€ annually*
- *Commission signs grant agreement, while re-in host will sign employment agreement*
- *Regular cut off date twice a year*





## IRSES “International Research Staff Exchange scheme”

- ✓ To establish or deepen partnership **between min 2 research organisations within EU/associate** and **one or more** organisations in third countries.
- ✓ Joint exchange programme to/from Europe (**not between EU/AS partners**) - 24 - 48 month **partnership**
- ✓ Short term exchanges (**up to 1 year per person**)
- ✓ Partner institutes **select their staff for exchange (Researchers, management, technical staff )**
- ✓ Staff are seconded (maintain salary in institution of origin and have the right to return – EC Contribution: 1800 € man/month



# The 7th EU Framework Programme (2007-2013)





# EISCAT\_3D

<b>Estimated construction cost</b>	<b>60-250 M€</b>
<b>First open access foreseen</b>	<b>2013</b>

## ***Next Generation European Incoherent Scatter Radar System***

- **A world-class strategic resource located in the northern periphery, close to the important Barents Sea and sub polar icecap areas;**
- **Will give unprecedented temporal/spatial information about the plasma and space env and accurate, large-scale, 3-dimensional measurements of the ionosphere and atmosphere for the first time;**
- **Drives developments in radar technology and signal processing and supports European industry;**

[www.eiscat.se](http://www.eiscat.se)

# COPAL



<b>Estimated construction cost</b>	<b>50 M€</b>
<b>First open access foreseen</b>	<b>2012</b>

## *Heavy Payload Long endurance Tropospheric Aircraft*

- Pan-European support for an Heavy-Payload Long-Endurance Tropospheric Aircraft
- Completing the European Fleet of more than 30 instrumented aircrafts for tropospheric research
- Needed for the development of Environmental and Geo-Sciences over oceanic, polar and remote areas, crucial for climate studies

[www.eufar.net](http://www.eufar.net)

# IAGOS



**Estimated  
construction cost**

**15 M€**

**First open access  
foreseen**

**2012**

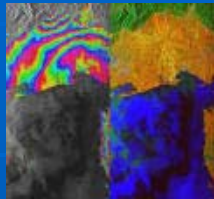
## *In Service Aircraft for a Global Observing System*

- Sustainable distributed infrastructure for regular observations of atmospheric composition from a fleet of 10-20 in-service aircrafts
- Fundamentally calibrated long term observations with newly developed instruments
- Commercial passenger aircrafts being equipped with autonomous and certified instrument packages

[www.iagos.org](http://www.iagos.org)



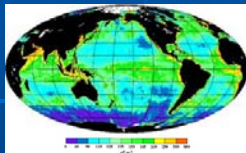
# GMES: dedicated space infrastructure



- **Sentinel 1** – SAR imaging (radar data) (2011)
  - All weather, day/night applications, interferometry
  - successor of ENVISAT



- **Sentinel 2** – Multispectral imaging (2012)
  - for land applications, e.g. urban, forest, agriculture
  - successor of SPOT, Landsat



- **Sentinel 3** – Ocean & Land monitoring (2012)
  - Wide-swath ocean color, vegetation, sea/land surface temperature, ocean altimetry



- **Sentinel 4** – Geostationary atmospheric (2017)
  - Atmospheric composition monitoring, trans-boundary pollution
- **Sentinel 5** – Low-orbit atmospheric (2019)
  - Atmospheric composition monitoring



# Five Core Services

## Five FP7 Integrated Projects

-  Atmosphere: **MACC**
-  Emergency Response: **SAFER**
-  Land: **geoland2**
-  Marine: **MyOcean**
-  Security: **G-MOSAIC**







EUROPEAN  
COMMISSION

Community research

Thank you for your attention !

[Astrid-Christina.Koch@ec.europa.eu](mailto:Astrid-Christina.Koch@ec.europa.eu)

