

The research leading to these results has received funding from the People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA grant agreement n° [608069].



## ISOtoPIC TOOLS AS NOVEL SENSORS OF EARTH SURFACE RESOURCES



# Successful Proposal Writing Marketing, Communication and excellent Ideas

Maja Tesmer – GFZ Potsdam – February 2018

# What makes a excellent proposal

- ⇒ A good fit with funding agency's priorities
- ⇒ Outstanding idea
- ⇒ Clear and convincing description of the research activities



# Write for the reviewers

## ⇒ Reviewers

- are professionals but not necessarily experts
- identify the background of the review committee
- explain to their needs

## ⇒ Have to read a lot of proposals in a short time and will use a checklist

- make sure they get interested
- make them find the key points easily
- know their checklist

## ⇒ Make your proposal easy to understand

- work in a team (find a good mock-reviewer)
- have a winning title, excellent abstract, outstanding conclusion
- Visualize, wherever possible

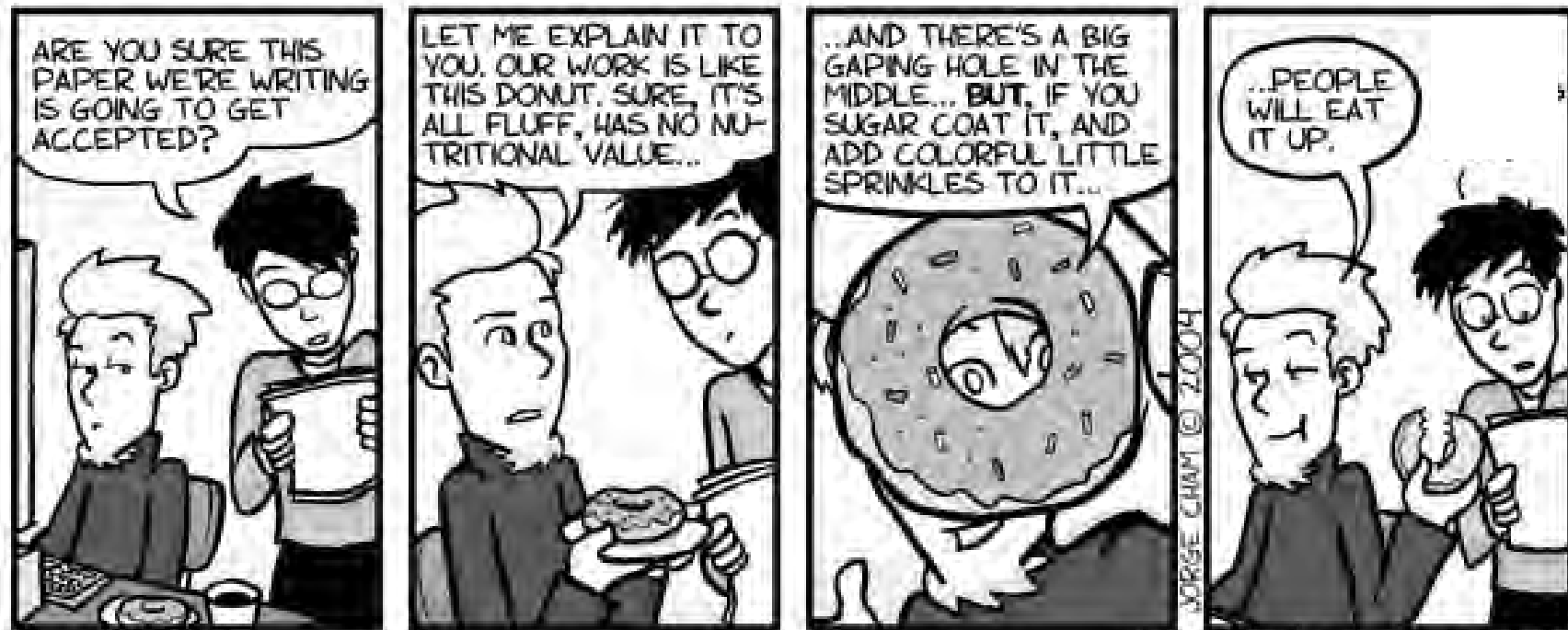


# Communicate to the reviewers



# Proposal: Sales Document

Poor proposal writing will turn very good science into an unfundable grant proposal.



# Finding a funding source

- ⇒ Does the funding agency share your goals?
- ⇒ Do you meet the criteria?
- ⇒ When is the deadline for submission?
- ⇒ How much money?
- ⇒ What is the success rate?



# How to start



- ⇒ Collect and all information about the Funding Agency, the work programme, the call
- ⇒ Read the Guide for Applicants at least twice
- ⇒ Write a short concept about what you intend to do

<b><u>Funding Agency (FA)</u></b>	<b><u>Applicant (AP)</u></b>
Has the money	Wants a contract for his research
Defines scope and conditions of funded research in a call	Offers research to be done in a proposal
Controls and examines delivery, pays the money	Delivers research results to FA or to the public, receives money





# Decide



# One page proposal

Order	What	Preparing
1. Funding	Funding Agency / Work Programme	1
2. Title	Title and Acronym	4 / 7
3. Objective	What is the Research Question?	5
4. Background	Why are we doing it? 5 Questions!	3
5. Results= Impact	Results and who wants the results?	2
6. Work Plan	What and how will you do this?	6
7. Cost/Duration	Expected duration and budget?	7

⇒ Helps focusing the project idea

⇒ Supports discussion with others

⇒ Will end in the proposal abstract

# One Page Proposal Template

## One Page Proposal Template for EU Funding

Template:

Funding Body / Work Program (if applicable) / type of project / funding

Title and ACRONYM

Objective with the proposal

Background to the project

Expected Result, 'Lead/End' user and Exploitation /Dissemination Plan

Phases of Work

Partners

Expected Budget:

Financial budget:

Duration:

## One Page Proposal Template for EU Funding

Example:

### Development of a sensor to Measure Hydrocarbons in Water - Hydrocarbex Project

Work program: FP7-ICT-2011.9.11

Funding scheme: Collaborative Project

The aim of this proposal to develop a technical prototype of an infrared sensor that will measure hydrocarbons in water. The sensor will use a fiber-optic cable, coated with a polymer and the level of hydrocarbon will be determined by measuring the changes in refractive index. The key research challenges will be: assessing the use of infrared to measure the level of hydrocarbons in water, identifying a range of polymers that could be used in the sensor and finally assessing the accuracy of the sensor.

#### Background to the project:

In 1999, the European Commission published legislation on water quality, known as the Water Framework Directive (COM 200/61). Annex 1 of this directive lists 11 parameters that must be continuously monitored to meet the directive. These are known as the 'priority hazardous substances'. One of these substances is Hydrocarbon. The sensors on the market today to monitor hydrocarbons in water are laboratory based; they require regular calibration and cost over €3000 euro per sensor. If the water legislation is enforced it will cost the European water industry hundreds of millions of euro per annum just to measure this one parameter – hydrocarbons. The aim of this proposal is to develop a low cost, infrared based sensor that will measure hydrocarbons in water to meet the conditions of the directive. The sensor will be suitable for onsite monitoring, will require a minimum of calibration and will deliver data continuously.

#### Expected Results, Lead Users and Exploitation /Dissemination Plan

*A technical prototype of an infra-red sensor that will measure hydrocarbons in water:*  
The sensor is expected to measure to an accuracy of 1,000 ppb (parts of billion) and will cost less than €50 to manufacture. A detailed design specification of the sensor will be published. This will enable design engineers to build and test prototypes of the sensor. The document will also be used in patent applications. A calibration curve for the sensor based on 150 hours of tests will be produced. This is essential to the product development engineers for further development of the commercial prototype and their reproduction of a range of test sensors for future pilot applications. The lead users will be designed engineers in companies that design and manufacture sensors for the water industry. One of the partners (Capitol Controls Ltd, UK) will define the industry requirements and will test the sensor in their laboratory and in a pilot test site on the river Severn, UK. The results will be disseminated to the water sensor industry through SWIGO (Sensor in Water Industry Group).

#### *Factual Data to upgrade the Hydrocarbex Index (ISO TC147):*

The factual data will be used to upgrade ISA TC147 so that the standard can be used for infrared sensors. The Scientific Coordinator of the project is a member of the Technical Committee of ISA TC147. This will ensure an efficient transfer of the results from the project to the Technical Committee.

**Phases of Work:** 1. Review of sensors on the market, 2. Specification of infrared sensor, 3. Identification of polymer to coat fiber-optic cable, 4. Testing of sensor, 5. 150hours calibration test, 6. Dissemination of results (SWIG), 7. Exploitation plan for further development.

#### Partners:

The proposal writers have been active in the development of infrared sensors and one of the industrial partners is a company that specializes in the development of sensors for the water industry. Coordinator Dublin City University (Prof. Brian McCraith), Partner 2 (Role infrared sensors), Partner 3 (Water sensor Company), Partner 4 (Fiber-Optic Company), Hyperion (Exploitation Manager), etc.

- ⇒ GET the guidelines
- ⇒ READ the guidelines
- ⇒ FOLLOW the guidelines





# And now?





- ⇒ Set up a time schedule with an internal deadline at least one week before the official deadline and multiple deadlines for milestones (**and keep to it**)
- ⇒ Create a document with all necessary chapters, headlines, tables
- ⇒ Inform all people involved (researchers, administration etc.)



⇒ Who is going to do what?

- How are these persons qualified?
- What resources will they need?
- Will they be willing?

⇒ Who else is likely to be involved and how?

⇒ Where will the work be done?





# Core components of a proposal

- ⇒ Title, abstract, keywords
- ⇒ Introduction / Statement of the Problem
- ⇒ State of the art / Back ground / Review of the Literature
- ⇒ Methodology / Data Analysis
- ⇒ Impact
- ⇒ Exploitation of results
- ⇒ Dissemination
- ⇒ Bibliography



# Deliverable vs. Milestone

## Deliverable:

- ⇒ “outputs” or “products” of an activity
- ⇒ produced to achieve the objectives
- ⇒ reports, papers, outreach material

## Milestone:

- ⇒ Control points for monitoring work performance
- ⇒ identifies that activities necessary for the success of the project have been completed
- ⇒ must be reached in order to continue (e.g. submit proposal, successful recruitment, developed method )



# Title, abstract, key words

- ⇒ Often used to select reviewers
- ⇒ May be all the reviewers read
- ⇒ Must match the proposal
  
- ⇒ Title should sell what the project is about
  - Catchy
  - Descriptive
  - Concise
  
- ⇒ Abstract should be able to stand alone
  - Publishable quality
  - Cover all key elements
  - Get reviewers interested

Soil, water, and precious metals are major natural resources present at the Earth's terrestrial surface and their efficient management is essential for future sustainable development. Their availability is regulated by massive biogeochemical transformations that take place as the chemical elements move from rock to soil, into plants, through ground water, into river water, and into ore deposits. These precious resources are currently being exploited to an extent that is unprecedented in the history of our planet.

We will make use of recent technological advances, in the form of novel mass-spectrometric methods, that have the as-yet unrealised capacity to make fundamental advances in understanding the formation of these resources. The understanding developed with these new tools will ultimately guide the sustainable exploitation of Earth surface environments.

We will train young researchers in these ISOtopic tools as NOvel Sensors of Earth surface resources (IsoNose) through this European Initial Training Network. Long-term collaboration to train this new generation of scientists will be initiated by instrument manufacturers, academic specialists in method development and applications, private sector participants from the environmental, material certification, and metal ore resources fields. The researchers will use IsoNose as a platform to lead this emerging field into new areas, including the geosciences, environmental forensics, biomedical sciences, and mineral resource prospecting.

**Why bother?**

**Why now?**

**What is the State-of-the-art?**

Soil, water, and precious metals are major natural resources present at the Earth's terrestrial surface and their efficient management is essential for future sustainable development. Their availability is regulated by massive biogeochemical transformations that take place as the chemical elements move from rock to soil, into plants, through ground water, into river water, and into ore deposits. These precious resources are currently being exploited to an extent that is unprecedented in the history of our planet.

**Where does your expertise fit in? Why you?**

**Why now?**

**Why bother?**

We will make use of recent technological advances, in the form of novel mass-spectrometric methods, that have the as-yet unrealised capacity to make fundamental advances in understanding the formation of these resources. The understanding developed with these new tools will ultimately guide the sustainable exploitation of Earth surface environments.

**Why with our money? Why is your research a priority of the specific funding agency? Who benefits?**

*The Innovative Training Networks (ITN) aim to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit. (MSCA Work Programme 2018-2020)*

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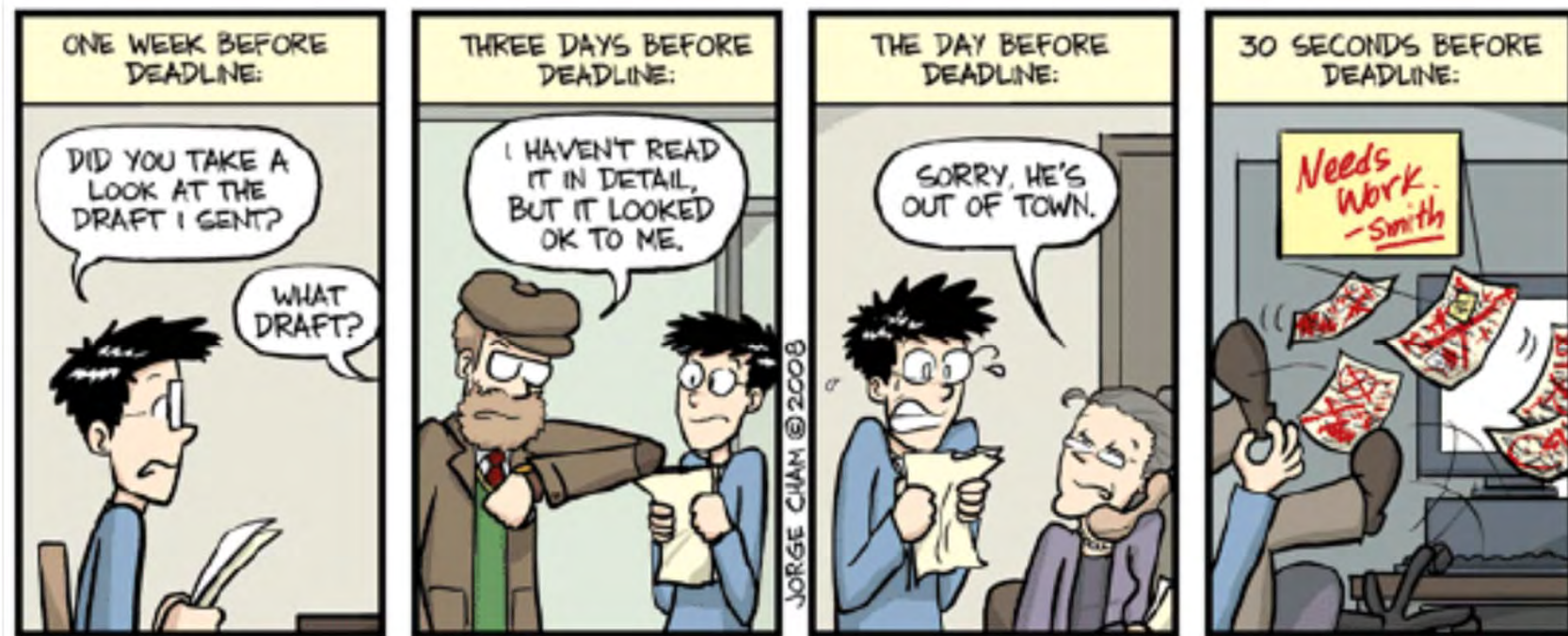
# Budget

- ⇒ Salary for staff
- ⇒ Travel
- ⇒ Purchase of equipment
- ⇒ Subcontracts
- ⇒ Institutional overheads



# Stick to the time-plan

- ⇒ Set internal deadlines for milestones
- ⇒ Provide enough time for proof-reading
- ⇒ Do not hesitate to remind other people if they do not stick to the time-plan



### ⇒ **How to write a winning proposal and get those grants!**

A Beginner's Guide to the Proposal Writing and Submission Process  
at the University of Virginia

<http://cte.virginia.edu/resources/how-to-write-a-winning-proposal-and-get-those-grants/>

### ⇒ **Proposal writing: stages and strategies with examples**

<https://grantfundingresources.wordpress.com/proposal-writing-stages-and-strategies-with-examples/>

### ⇒ **Ten tips for writing your research proposal**

<https://www.mcgill.ca/gps/students/research-tracking/proposals>

### ⇒ **How to write the 10 key sentences**

<http://www.researchfundingtoolkit.org/research-grant-cookbook/>

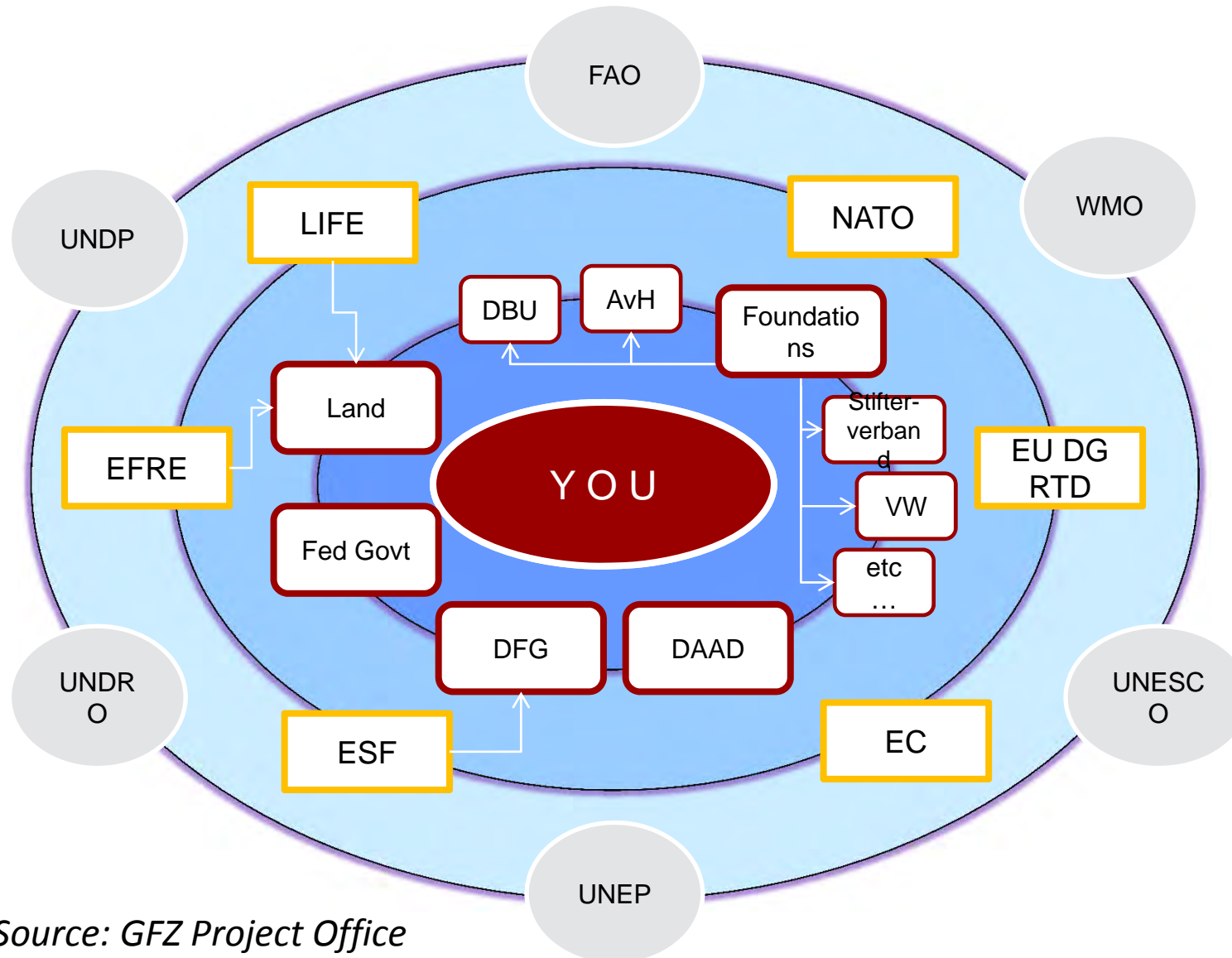


# Summary



# Funding Opportunities

Many funding opportunities – contact research offices/ministries/colleagues



Source: GFZ Project Office

# Finding a funding source: Links

⇒ **Funding for independent postdoc fellowship**

[https://docs.google.com/spreadsheets/d/1J2M\\_tQgoqV4ivpfEClh9qs9f2KQN2O1G3Jpda2aoHfQ/edit#gid=0](https://docs.google.com/spreadsheets/d/1J2M_tQgoqV4ivpfEClh9qs9f2KQN2O1G3Jpda2aoHfQ/edit#gid=0)

⇒ **Research Professional** (*only with license; TCD has one*)

<https://www.researchprofessional.com>.

⇒ **ELFI – Electronic Research Funding Information System** (*only with license, GFZ has one*)





# German Academic Exchange Service (DAAD)



**DAAD**

Deutscher Akademischer Austauschdienst  
German Academic Exchange Service

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## Finding Scholarships

Here you can find information on various kinds of DAAD funding for foreign students, graduates and postdocs as well as on funding offered by [other selected organisations](#).



<https://www.daad.de/deutschland/stipendium/datenbank/en/21148-scholarship-database/>

**P.R.I.M.E. Postdoctoral Researchers International Mobility Experience • DAAD**

<https://www.daad.de/ausland/studieren/stipendium/de/70-stipendien-finden-und-bewerben/?detail=57092234>



<https://erc.europa.eu/funding-and-grants/funding-schemes/starting-grants>

- ⇒ Eligibility Criteria: PhD or at least four years' full-time research experience
- ⇒ Mobility rule: Fellow has lived and worked less than twelve months within the last three years in the potential host country.
- ⇒ Funding per month: Living Allowance (€4,650 \* country correction coefficient), Mobility Allowance (€600), Family Allowance (€500), Research, training and networking costs (€850), Management and indirect costs (€650)

## European Fellowships (EF)

- ⇒ Duration: between 12 and 24 months

## Global Fellowships (GF)

- ⇒ Duration: between 24 and 36 months

**Deadline: 12<sup>th</sup> September 2018, 17:00.00 (Brussels local time)**





Alexander von Humboldt  
Stiftung/Foundation

[https://www.humboldt-foundation.de/web/pub\\_progsearch.main?p\\_lang=en&p\\_forschungsaufenthalt\\_id=&p\\_promotions\\_jahr=2017&p\\_karrierestufe\\_id=1&p\\_nation=FRA&p\\_button\\_search=Suche&p\\_detail\\_text\\_id=771](https://www.humboldt-foundation.de/web/pub_progsearch.main?p_lang=en&p_forschungsaufenthalt_id=&p_promotions_jahr=2017&p_karrierestufe_id=1&p_nation=FRA&p_button_search=Suche&p_detail_text_id=771)

⇒ Eligibility Criteria:

- PhD < four years ago (post-doctoral researchers)

⇒ Research stay at the scientific host institution in Germany

⇒ Budget: 2,760 €

⇒ Duration:

- 6 to 24 months

Application any time

# AvH: Feodor Lynen Research Fellowships



Alexander von Humboldt  
Stiftung/Foundation

<https://www.humboldt-foundation.de/web/lynen-fellowship.html>

## ⇒ Eligibility Criteria:

- German nationality
- PhD < four years ago (post-doctoral researchers)
- PhD < twelve years ago (experienced researchers)

## ⇒ Research stay at the scientific host institution abroad

- Host institution: member of the Humboldt Network
- Humboldt Foundation provides assistance with finding a host

## ⇒ Budget (depending on the host country): Research fellowship, return travel expenses, reintegration allowance, return fellowship

## ⇒ Duration:

- 6 to 24 months (post-doctoral researchers)
- 6 to 18 months (experienced researchers)

Application any time

# DFG : Research Fellowships

Deutsche  
Forschungsgemeinschaft  
**DFG**

[http://www.dfg.de/en/research\\_funding/programmes/individual/research\\_fellowships/index.html](http://www.dfg.de/en/research_funding/programmes/individual/research_fellowships/index.html)

- ⇒ Eligibility Criteria: PhD, German
- ⇒ Carrying out clearly defined research project at a place of choice abroad
- ⇒ Period: maximum two years
- ⇒ Budget: € 1750/month (basic fellowship) + plus €250/month (direct project costs, travel and publication expenses )
- ⇒ Candidates may apply for a return grant to facilitate their reintegration into the German academic and research system

Proposal submission: any time

[http://www.dfg.de/en/research\\_funding/programmes/individual/emmy\\_noether/index.html](http://www.dfg.de/en/research_funding/programmes/individual/emmy_noether/index.html)

- ⇒ Eligibility Criteria: Postdoctoral experience two to four years; international research experience (stay abroad > twelve month)
- ⇒ Provide outstanding young researchers with the opportunity to rapidly qualify for a leading position by
  - leading an independent junior research group
  - assuming relevant teaching duties
- ⇒ Budget: salary staff and direct costs
- ⇒ Duration: three years (+ two years)

Proposal submission: any time

# DFG : Research Grants



[http://www.dfg.de/en/research\\_funding/programmes/individual/research\\_grants/index.html](http://www.dfg.de/en/research_funding/programmes/individual/research_grants/index.html)

- ⇒ Eligibility Criteria: PhD
- ⇒ Period: maximum three years (renewal proposal may be submitted)
- ⇒ Budget: salary, direct costs
- ⇒ non-university research institution (e.g. GFZ) bears 45% of the costs for the project
  - Employer statement regarding cost coverage

Proposal submission: any time

# The Proposal Cycle

