

MSCA PF @ IOCB



Image: gearingroles.eu

Applicant workshop 2

With thanks to Jakub Zeman (MUNI) for background materials.

Project Office | 14 June 2022

What makes a good abstract?

• What should definitely be included?



<u>Your post it notes:</u> WHAT-WHERE-HOW-WHO, Title

What? State of the art, general intro for non specialist, knowledge gap (problem)

How? Key challenge – the answer – concrete solutions, Proposed solution

Why (now)?

Who (why me?) Why am I a good fit?

What makes a good abstract?

- What?
- Challenge: 1-2 sentences to put project into context
- Objectives: What is the project about? What do I want to do?
- <u>How</u>?
- How will the objectives be achieved?
- Which (novel) methods will be used?
- <u>Why now</u>?
- Relevance of the objective to the work programme?
- Expected broader impact? European added value?
- <u>Who (Why me)</u>?
- Why are YOU the right person to achieve the proposed objective?
- What impact will this have on your career?

Abstract – some example phrases

• What will you do?

... has not been determined/is unclear.X is limited by...The question remains if...I aim to...My goal is...

I will test the hypothesis that...

• How will you do it?

I will achieve this goal by... More generally, the strategy is...

• Why is it important now?

... is important for ... This may play a role in ... Z can be used towill provide insights into... • Who will do it? Why you?

I have experience with... I will gain skills in...

Can you find all these in the following?

Quantum sensing is a recent, dynamically expanding field affecting many scientific and industrial disciplines, including chemistry, biochemistry, biology and medicine. I have been advancing this field by developing quantum physical principles for the detection of Nitrogen-Vacancy (NV) spin states in diamond. In my recent collaboration with the hosting supervisor, we have demonstrated that nanodiamond particles (NDs) can act as an optical probe for redox reactions reaching unprecedented sensitivity of 10 external spins. ND probes have enormous potential for instance for intracellular localized detection, but the sensitivity is limited by short NV coherence times due to subsurface defects and unsaturated bonds. Moreover, the sensor specificity and colloidal stability in the biological liquids need to be addressed. I aim to tackle these drawbacks by developing a radically novel chemical approach to remove the unpaired electrons and by engineering ultrathin polymer coatings and linking strategies. To reach the project's complex goals, a highly interdisciplinary approach is proposed. My plan is to 1) annihilate the dangling bonds and subsurface defects by controlled surface removal using radical etching in the gas phase, 2) develop colloidally stable ND probes using ultrathin polymer coating, 3) use NV spin properties to optically detect paramagnetic ions and nucleic acids in biologically relevant conditions with unprecedented sensitivity. The proposed fellowship will allow me to look at the problematics of quantum sensors from the chemical point of view, complementing my expertise in physics. Furthermore, acquiring chemical skills by working in a leading ND surface chemistry group, will improve my prospects to become a leader in the topic of quantum biological sensing, which I want to pursue further in my home country. At the same time, I would like to bring to the host group my expertise in quantum sensing methodology that will be used in the project and beyond it.

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https://cordis.europa.eu/project/id/101038045



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WHAT

HOW

WHY NOW

WHO (WHY ME)

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https://cordis.europa.eu/project/id/101038045

Activity: graphical abstract?

- Take your abstract/synopsis
- Prepare a graphical abstract/schematic of the project

...then...

c.10-15min



- Swap abstracts with a partner and make a graphical abstract of how you understand the other person's project
- Underline places which are unclear/difficult to understand
- Indicate the point from which you did not understand the project and try and work out why

... then compare...

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Credit: Jakub Zeman

Dissemination = make your results public

- For whom?
 - scientists, authorities, industry, policymakers, sectors of interest, civil society
- How?
 - Publishing your results on:
 - scientific papers, scientific and/or targeted conferences databases
- When?
 - at any time, and as soon as the action has results
- Why?

maximise results' impact, contribute to the advancement of the S-O-T-A, the contribution of sci. results to society Project Office | 14 June 2022

Exploitation = make concrete use of results

For whom?

authorities, industrial authorities, policymakers, sectors of interest, civil society

How?

> creating roadmaps, prototypes, softwares, sharing of knowledge, skills, data

When?

> towards the end and beyond, as soon as the action has exploitable results

Why?

> lead to new legislation or recommendations, for benefit of innovation, the economy and society, to tackle a problem and respond to an existing demand Project Office | 14 June 2022

Communication = promote your results

• For whom?

reaching multiple audiences: citizens, the media, stakeholders

• How?

having a well-designed strategy: conveying clear messages; using the right media channels

• When?

from the start of the action until the end

• Why?

engage with stakeholders, attract the best experts to your team, generate market demand, raise awareness of how public money is spent, European collaboration

Activity: why they all matter?

• EXPLOITATION

List immediate users – consider yourself, your supervisor, relevant community and **networks**

Any commercial exploitation? When? Any obstacles? Any prerequisites? Any partners?

Open data – describe your idea what data you can share, in what format and at what platforms – do you need to increase your knowledge on Open data management?

DISSEMINATION

Can you define any dissemination objectives? What you may want to communicate? How can you help your research through dissemination and outreach?

Who should know? What specific target groups will you address (i.e. collaborating fellows and labs, broader networks, various disciplines) Communication channels – which ones specifically, why and when

Activity: why they all matter?

COMMUNICATION

Try to think about a broader context of your research Can you communicate to lay persons? Can you explain your science to anyone?

Can you think about a specific way of delivering your ideas to a broad public? Any specific events and communication channels and means?

Citizen Science – Open data – Multimedia



Activity: what do I need to know about the host institution?

 Brainstorm the points that you need from institution and

supervisor



Your post it notes:

Supervisor:

- Number of students working with/possibility of teaching
- Supervisor's CV
- Number of grants, ERC, MSCA...
- Previous experience in the field
- Dissemination, applications
- Previous successes (grants, papers, awards)

Host institution(s):

- Institutional and country policies on animal work, GMO, etc
- Medical insurance coverage
- TTO approach
- Description (probably they have that prepared)
- Grant department and how they can help me
- Intellectual property
- Communications channels (Twitter, FB, anything else)
- Technical equipment
- Special certificates (radioactivity, mice, etc.)

Activity: what do I need to know about the host institution?

- Profile of supervisor (previous MSCA PF applications?)
- Supervisor's network of collaboration in HI, country where you go and beyond
- Others in hosting group with skills that are useful for you
- Consult research/grant office: activities for postdocs+PhD students (social, training courses, committees, informal events), welcome office, language trainings, child care support if available/appropriate
- Training technical (supervisor, group) and transferable (department, university, ...) skills → make a "training/supervision plan" specifically for yourself based on your project content and your needs
- Based on the above: write a brief description of how you will integrate into the host institution and the research networks – expanding international network is important aspect of MSCA PF

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Homework

Dissemination, Exploitation, Outreach Activities – prepare specific ones and how they apply to your own project

Mapping – identify specific people at host institution (and elsewhere), including supervisor and make a time plan of when you should provide them with proposal to feed back

(abstract – updated version can be consulted with us individually)

Project Office (Blanka Collis/ Jitka Šilerová/Veronika Palečková) 14 June 2022

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Thank you for your attention.