SOME THOUGHTS ON WRITING A SUCCESSFUL ERC PROPOSAL

Wim Bogaerts
MY ERC CONSOLIDATOR GRANT: **PhotonicICsWARM**

**Photonic Integrated Circuits using Scattered Waveguide elements in an Adaptive, Reconfigurable Mesh.**

*Host Institute: Ghent University (Universiteit Gent)*

*Duration: 1 April 2017 – 31 March 2022 (60 Months)*

*Call: 2016-ERC-CoG*

*Committee: PE7*
MY PERSONAL BACKGROUND

• M.Sc. Engineering - Applied Physics (Burgerlijk Natuurkundig Ir.)
  1998 – Ghent University
• Ph.D. EE. Engineering (Photonics)
  2004 – Ghent University, imec
• FWO Postdoctoral researcher
  2004 – 2010 – Ghent University, imec
• Tenure track lecturer in 2010
• Senior Lecturer in 2011
• Black belt in LEAN in 2013
• Spin-off company Luceda Photonics in 2014
  (remained part-time at UGent)
• Returned full-time to Ghent University in 2016

Publications (Jan 2016):
• 115 journal papers
• 15 as first author
• 20 as last author
• 10 invited
• >40 without promotor
• 5 book chapters
• 5 granted patents
• H-index: 38
A Nice Track Record Helps, but it is not Everything…

~3000 candidates
All smart people with good creds

You are good…
but so are the others

You can’t change your track record, but there is more to a project proposal

How to make your project stronger?
How to stand out?
**Tip 1: Be Relatable**

In traditional project proposals, it’s about the TEAM.

In an ERC grant, it’s about the I

Shed your (Belgian) modesty

- Use ‘I’ instead of ‘We’, or ‘my team’
- Tell your own story, not just the numbers
  (Why are you the best person for this project?)
- Weave your skills into the project description:
  Relate project objectives to your personal experience
- You are more than a researcher
Tip 1: Be Relatable

It’s about you, and about your project

Branding: create an identity
- Nice visual logo (use on the front page)
- Good name:
  - should be pronounceable
  - acronym should be meaningful
- Use the acronym instead of ‘the project’ throughout the text.
  - Make it stand out in the text (e.g. SMALLCAPS)
Tip 2: Be Honest

• about yourself
• about your goals
• about the strengths of the project (but also about the weaknesses)

Never lie

• outright
• by exaggeration
• by omission

Reviewers are not naive. They have also written project proposals, they are more experienced than you, and can read between the lines.
**Tip 2: Be Honest**

know your weaknesses, and your project’s.
- do not try to hide them (lie by omission)
- be open about them, explain mitigation strategies
- acknowledge work of competition (they might be in the reviewer panel)

**Limit scope**
- do not promise to do everything (because you can’t deliver)
- clearly state what you will NOT do, where the limits of your work lie
- tell where you will work together with others, even competitors
**Tip 3: Be Accessible**

Reviewers should not struggle to read your proposal: make it easy to read

Address **visual** learners

- Clear figures
- Consistent visual style
- Figures take a prominent place
- Page layout: not too packed. (tip: use LaTeX)

Address **auditory** learners

- Good English (have it proofread)
- Consistent narrative (tell a story)
- No overly long sentences
- Repeat the important points
Figure 1: Waveguide architectures for distributed photonic integrated circuits. Light travels through the circuit along many paths. The distribution of delay paths is controlled in a grid-like way so that the light interferes constructively at the desired output(s). Possible sites for actuators are indicated in yellow.

Lateral leakage is the phenomenon where waveguides can exchange light through an intermediate guiding layer, leading to on-chip antenna beamsignals over a long range and bypassing intermediate waveguides [58, 59]. This effectively breaks the restrictions of a planar topology, and enables circuits with higher connectivity. With active tuning, this effect can be switched on or off in a continuous way [60]. Ring resonators are cavities that capture and release light when the wavelength fits a whole number of times inside the cavity [61]. The presence or absence of ring resonators can be controlled using optical power and controlled active tuning can be used to make extreme accuracy sensor. Phased waveguide arrays consist of multiple waveguide bundles with a controlled relative phase [54, 55]. When cascaded together and including active tuning in the feedback circuit, I demonstrated a most simple reconfigurable lateral leakage, enabling a chip antenna beamforming using light. This technology is being developed through industry [62, 63].

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**TIP 4: BELIEVE**

You must believe in your project

- that you can make it work
- that you really want to do this
- that it is meaningful

If you* don’t believe
- your motivation
- your technical plan

how will you convince reviewers?

* and your peers
Tip 4: Believe

To make a convincing story, you need to answer

- What?
- How?
- Why?

What researchers think

What funding agencies think
**Tip 4: Believe: Why?**

The motivation of your work should not be an afterthought.

Start with **a single driver**

- **An observation**: “The current situation is like this (and not good enough)”
- **A need**: “The world needs … to make it better”

Break down drivers into subdrivers (for each workpackage) that relate to the main driver.

Drivers should sound realistic; don’t be overly dramatic.

If you can convince the reader of your driver, you are more than halfway.
TIP 4: BELIEVE: WHAT?

What is your Key (technical) idea to tackle the driver?

Without a good idea, it will not work.

Refining the idea
- brainstorm
- break down your idea / project into bullets / pictures.
- strip nonessential sidetracks (or use as risk mitigation)
- try pitching it for a critical audience
- repeat

Postpone the actual writing:
Once you start writing text, you will lock your train of thought. Rewriting is tough
**Tip 4: Believe: How?**

Make your project real!

- write as if the project is already approved  
  (plan of action instead of a proposal)
- “I will”
- do not use the word ‘proposal’
- use “can” and “will”,  
  rather than “could” and “would”
To be or not to be

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Be Honest
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Be lieve