Proposal Writing

Or basically just someones 2 cents about it

Claudio Kopper & other seniors

(originally developed by my amazing colleague Anna Nelles - who would have done this workshop, but can’t be here this year 😅)

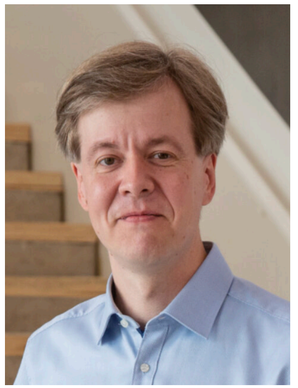
ERLANGEN CENTRE FOR ASTROPARTICLE PHYSICS

Friedrich-Alexander-Universität Erlangen-Nürnberg

CV

The nominal steps

- 1999 - 2005: Physics at FAU Erlangen, Germany (Diploma)
- 2005 - 2010: “PhD” (Dr. rer. nat.) in at FAU Erlangen
- 2010 - 2011: Postdoc at NIKHEF, Amsterdam, The Netherlands
- 2011 - 2014: Postdoc and John Bahcall Fellow at University of Wisconsin—Madison, USA
- 2014 - 2018: Assistant Professor (Tenure-Track), University of Alberta, Canada
- 2018 - 2023: Associate Professor (Tenured), Michigan State University, East Lansing, USA
- Since 2023: Professor at FAU Erlangen (“Chair for Experimental Astroparticle Physics”)



- *Served in a large number collaboration bodies as PhD, post-doc, junior faculty (early career scientist rep, working group lead, analysis coordinator, …)*

A couple of warm up questions

This workshop is supposed to be a workshop and interactive

- Who has written a proposal before?
- Who has won a price that they had to nominate themselves for?
- Who has ever prepared an elevator pitch about themselves?
- Who has ever gone up to someone they didn’t know and introduced themselves as physicist?
- Who has heard the question “so what is this good for that you do?”
- Who has convinced someone to study physics (like in an outreach session)?

Let’s face it

No one will have a career in science without successfully securing funding

- Why?

  - Research institutions have a hole in the budget
  - Universities compete for money / people / prestige / ideas
  - Third party funding is needed to get large projects going
  - For every funded grant, the university gets ‘overheads’ that finance other things
  - Big projects with publicity are good for prestige / …
  - Hiring people is one of the largest expenses
    - O(80k) per year for PhD student / post-doc
    - O(150k) (or more) per year for Professor + pension + for life + …

In order to get funded, you need funding

Start early, start young

- Why?

- No one wants to be wrong, so if you were funded before, you are probably good
- Things like travel grants, scholarships to go abroad are much easier to get
- Build expertise in writing, thinking about ideas, defending proposals, and presenting yourself
- If you are a senior post-doc and haven’t gotten funding people will start to get suspicious
- There is always a section on each application form for ‘funding’ and you don’t want that empty

A funding track record - Anna Nelles

* recommended
\+ Individual application

Red = Not funded, Green = Funded

Before PhD	- Studienstiftung*	- Femtec Scholarship+ - e-fellows* - Karman Price*
During PhD	- Frye Stipendium*	- 5 Travel Fellowships+
After PhD	- DAAD fellowship+ - Rubicon grant+	- German Research Foundation Fellowship+
During Post-Doc		- Emmy Noether Grant+ - Helmholtz-Professorship* - IUPAP C4 Young Scientist Price*
As faculty	- DFG Germany-Russia Program - DFG Collaborative Research Center (Co-I) - AKF Price* - DFG Grant (1) - DFG Grant (2) - DFG Grant (4)	- Professorinnen Program+ - ERC Starting Grant+ - Helmholtz-Weizmann Graduate School (Co-I) - Erum-Data (Co-I) - Erum-Universe LOFAR (Co-I) - Erum-Universe IceCube (Co-I) - Erum-Transfer (PI) - DFG Grant (3)
Currently Pending	- DFG Grant (5) - Large Scale Infrastructure (BMBF) - DFG Graduate School (Co-I)	

Please remember from this slide:
- Don't despair if your proposals don't get funded

- Proposal writing is a large part of the job in academia

My funding track record [lots of joint grants!]

Red = Not funded, Green = Funded

During PhD	- DAAD fellowship - Travel Fellowship	
During Post-Doc		- Bahcall Fellowship - IUPAP C4 Young Scientist Price
As faculty	- NSF Grant #1 - NSF Grant #2 - NSF Grant #3 - NSF SCiMMA 2nd try - DFG GRK #1 - DFG GRK #2	- NSERC SAPPJ – Subatomic Physics Envelope [joint] - CFI John R. Evans Leaders Fund - Compute-Calcul Canada [joint] - NSERC - T2K co-applicant [joint] - NSF SCiMMA 3rd try - NSF IceCube Data Analysis in the U.S. - BMBF Verbundforschung - external co-applicant to SFB@TUM
Currently Pending	- DFG Grant	

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How does a proposal process typically work?

Unfortunately, every one is different — double-check your funding line

- May or may not involve:
  - **Expert reviewers:**
    - Experts in your field who review your proposal for feasibility and science content (e.g. first step of DFG proposals); typically knows the experiment you work on and the details
  - **Review panel:**
    - Experts in your broader field, e.g. astronomy (in general) or particle physics (in general); understands the context of your research, but probably not the technical details
  - **General panel:**
    - Experts of all sciences or even politics; will not know the technical details and sometimes not even the scientific context, looks for broader impact, uniqueness, your ability to convey your science, …
- **Some combination of all of the above**
  - **All of these require very different proposals!**

How does a proposal process typically work?

Unfortunately, every one is different — double-check your funding line

- **There are also many additional constraint to keep in mind**
  - Can you defend your proposal?
    - *First a written and then a presentation round, will you get the feedback before the presentation*
  - Can you submit the proposal again?
    - *Some grants come with exclusion rules (if worse grade, banned from resubmitting)*
    - *Some grants allow resubmission and provide the review reports*
  - Is there a fixed deadline or a running deadline?
    - *A deadline may lead to a non-perfect grant, but may also help you finish the application*
    - *With a running deadline it may make sense to delay, e.g. wait for a paper to be published*

How does one even start to write a proposal?

There is no golden recipe to writing a proposal, otherwise everyone would have it, but here is one take

- An outstanding proposal can be summarized in 5 sentences — ideally even in one
- You need to think about the one unique selling point that your proposal has
  - Why you? *(Why not someone else)*
  - Why this? *(and not solving the energy problem of the world?)*
  - Why now? *(What will we lose if not now?)*
- **Easier said than done ….**
- Even a fantastic proposal still only has a < 1 chance of being funded
  - Reviewers may have prior knowledge: *“XYZ is a dumb project, no money should go there.”*
  - Your tone may just not resonate with the reviewer: *“This person sounds arrogant.”*
  - Panel may have funded another ‘similar’ one already: *“It just doesn’t fit the program”*
  - …

Proposal Workshop

Write your own proposal

- Pick either a **topic** you want to work on, or one you currently work on (you are allowed to pitch your thesis topic as proposal)
- Write the summary, **‘the elevator pitch’ targeted at an astroparticle review panel**
  (assume that people have a similar background as everyone here, but may not be from your exact field)
  *(roughly **30 minutes**, but take as much time as you need)*
- Find partners to review each other’s proposals
  - someone who is from your field and improve if necessary ***(30 minutes)***
  - someone who is NOT from your field and improve if necessary ***(30 minutes)***
- We will break for a Coffee Break 10:45 - 11:15
  - After everyone is finished:
    - Present/read your proposal in front of everyone
    - Seniors in the room will provide feedback and act as a review panel

What did you learn from Proposal Workshop?

What open question are still there?

Today: CV

What is the purpose of a CV, what do you think?

CV workshop

EVERY proposal needs a targeted CV

- A pretty template counts, but not always
- How to make sure your CV works?
  - Adjusted to the focus of the proposal AND the focus of the call
  - Annoyingly all have a different template
- Basic structure can always be the same, but needs sharpening
- Never leave a field empty
- Don’t be afraid to name small things, but don’t deviate from the truth

CV Guidelines

Some programs give guidelines about the structure, some don’t

- A typical one — what would one put?
  - Personal Details
  - Education
  - Current position
  - Previous positions
  - Fellowships and Awards
  - Teaching activities
  - Academic Service
  - 5 most relevant publications

- Take 30 minutes to write your academic CV according to the DFG template
- https://www.dfg.de/formulare/53_200_elan/