

Some experience regarding ERC (ERC Starting Grant 2010)

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- Pre-writing phase
- Writing/training
- Interview round Brussels

Pre-writing phase

Curriculum Vitae

- Scientific leader potential (1 page)
- Early scientific contributions (1 page)
- Recognition (1 page)
- And of course your regular CV

High-gain high-risk balance

- Build on recent results (expertise)
- Combine seemingly unrelated topics
- Create a sense of urgency
- Be extremely transparent about what is new, why it is new, and why you can tackle it

Writing/training

- Sketch general background (for a large math audience)

The research area of stochastic processes, and more in particular..., is about a century old and continues to generate problems that are mathematically challenging and practically relevant. Among the most exciting lines of research is ...

- Describe state-of-the-art (work of others!)

Writing/training

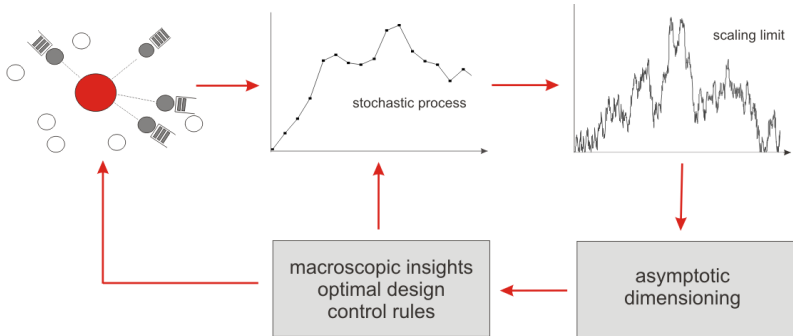
Include clear places where you describe your expertise.

Expertise: In [...] we identified the scaling limits for the sizes of the largest components for critical inhomogeneous random graphs with weights that have finite third moments. We showed that the sizes of the (rescaled) components converge to the excursion lengths of an inhomogeneous Brownian motion, extending results of Aldous(1997). We relied heavily on martingale convergence techniques, and concentration properties of (super)martingales.

Writing/training

Clear structure

- Projects within project
- Who is doing what?
- Key challenges, milestones, etc...
- It should be a large project, so make sure that there are enough angles and layers, yet preserving cohesion



Three projects

1. Scaling limits

- Major research activity in Probability Theory
- Clear open problems with large impact
- **PhD student** (4 years)

2. Time-dependent behavior

- Connects different fields
- Analytic and probabilistic techniques
- **Postdoc** (2 years)

3. Asymptotic dimensioning

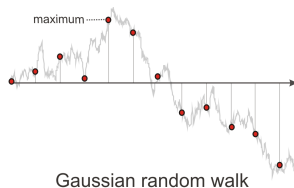
- New mathematical framework
- Requires unconventional approaches
- **Postdoc** (2 years)

Writing/training

Consider to include mathematics, for instance by describing

- Classical results
- Canonical examples
- Or just the real thing without too much explanation

A metaphor



Brownian motion with negative drift $-\beta$

$$\mathbb{E}M_{\text{BM}} = \frac{1}{2\beta}$$

$$\mathbb{E}M_{\text{GRW}} = \frac{1}{2\beta} + \frac{\zeta(\frac{1}{2})}{\sqrt{2\pi}} + \frac{1}{4}\beta + \frac{\beta^2}{\sqrt{2\pi}} \sum_{r=0}^{\infty} \frac{\zeta(-\frac{1}{2} - r)}{r!(2r+1)(2r+2)} \left(\frac{-\beta^2}{2}\right)^r$$

See *Ann. Appl. Probab.* (2007) and *Electr. Comm. Probab.* (2009)

Writing/training

Sense of urgency

The novelty and urgency is underlined by the fact that Van Leeuwaarden and XXX co-organized a Stochastic Activity Month at EURANDOM on the topic of *scaling limits and spatial probability* in February 2012. Van Leeuwaarden and XXX have organized two workshops in that month, invited many international guests, and facilitated discussion on the various topics related to scaling limits. The topic of this proposal is in that respect high on our research agenda, and this seems to be shared within the research community.

Interview in Brussels

- 10m presentations, 20m questions, 50% change
- 6 referee reports, 14 panel members
- Not a cosy atmosphere
- Be prepared (panel members/possible questions)
- The presentation should be flawless

Interview in Brussels

Experts on presenting and interviewing

- Group of 4 researchers of TU/e in 2009
- Each brought in additional members
- Professional advice and the right atmosphere to put effort into it
- What is necessary strongly depends on the discipline

Create your own group

- Practise behind closed doors with harsh criticism
- People from your own area, and just outside your own area

Takeaways (personal opinions)

- Don't listen too much to what other people say
- Be creative and try to avoid cliches, both in text and layout
- For instance: include mathematical details if you feel like it
- Make explicit recent expertise
- Creating a sense of urgency is crucial
- Your competitors are probably outside your own area
- ERC requires writing a special CV
- Why are you at a young age capable of running a large project?