



# A PhD is not enough... How to prepare for a career in academia

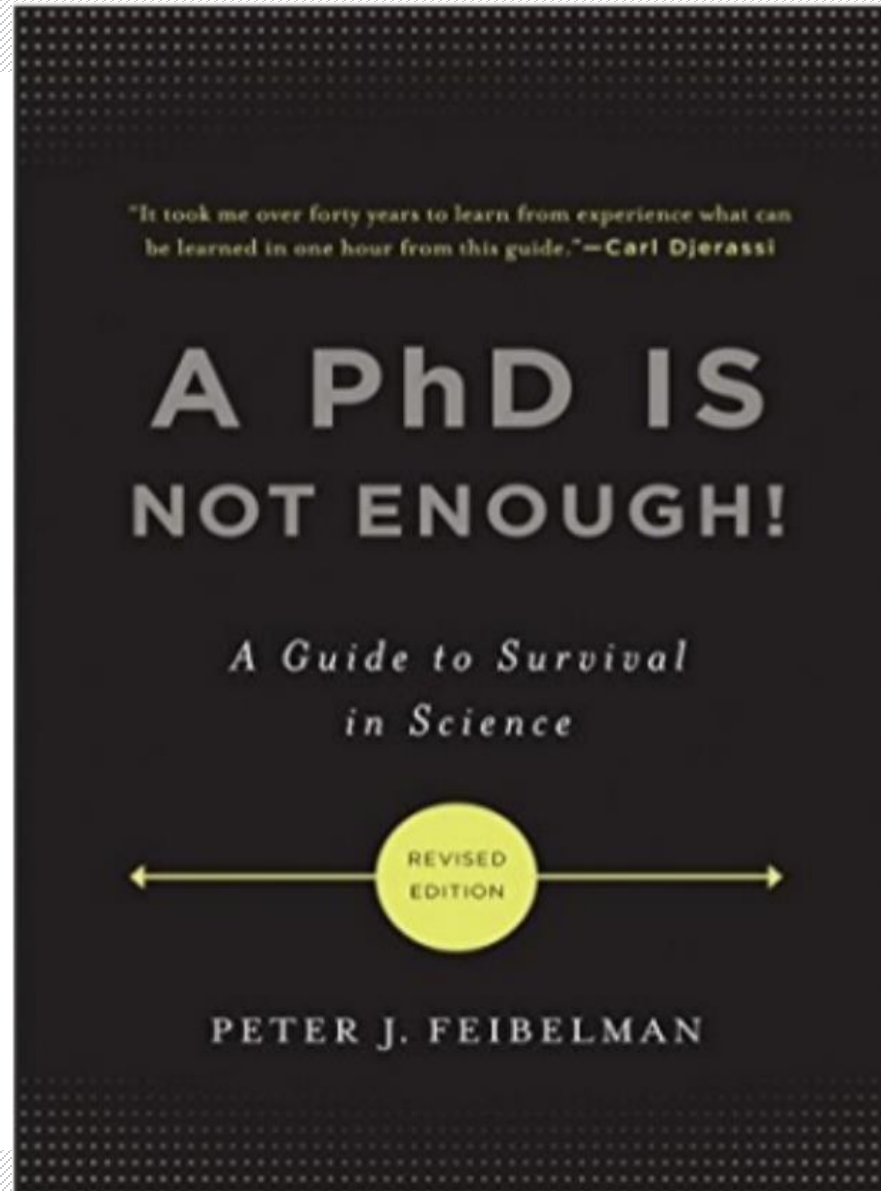
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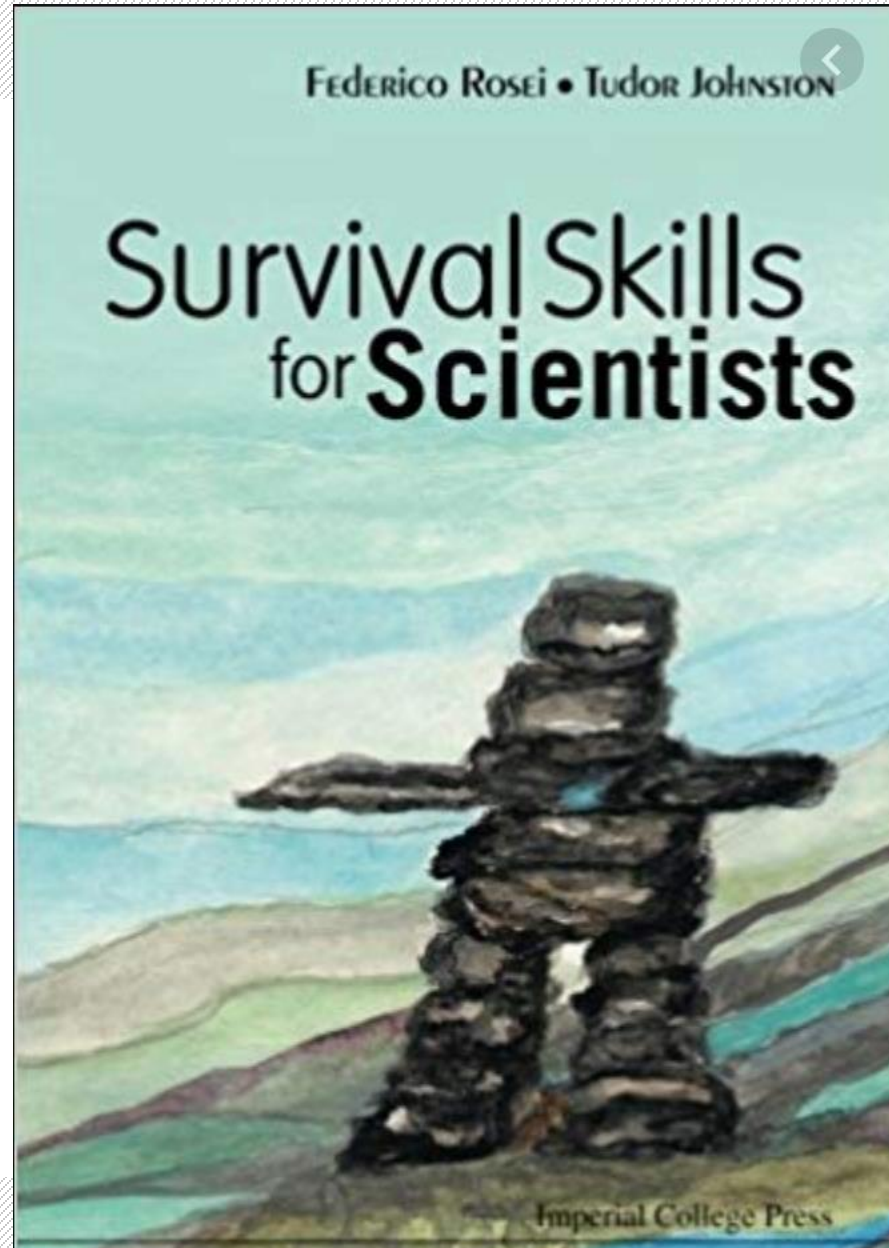


Title inspired by





Similar book  
more relating to  
Europe





# After your PhD, there are many career options



Image from  
U.K. Diamond  
Light Source



# What percentage of PhD graduates (on average) continue in academia?

Rathenau Instituut

## The impact of a doctorate

The careers and job prospects of doctorate holders in the Netherlands



Report

## Netherlands:

- 70% PhD graduates work outside academia
- **28%** inside academia
- only 2% unemployment
- (source 2018 Rathenau Institute - The Impact of a PhD)



# How to choose?

If you can get up and have fun at  
 your job, that is the right job.

Donna Strickland, Nobel Laureate in Physics 2018



LINDAU  
 NOBEL LAUREATE  
 MEETINGS



# How to choose?



LINDAU  
NOBEL LAUREATE  
MEETINGS

„Find passion in your work – whatever it is. If, like me, you are working in the area of science, I can promise you that it can be the most exciting and rewarding of careers.“

Barry Marshall, Nobel Laureate in Physiology or Medicine 2005





# Do not decide against academia because

Your supervisor has not explicitly encouraged you to go for it.

*“I don’t think you need to be extra smart for an academic career. Much more important is that you love research and teaching, how much time and effort want put into it and that you are not afraid to be alone.”*





# Do not decide against academia because

You think that a family and an academic career are incompatible.

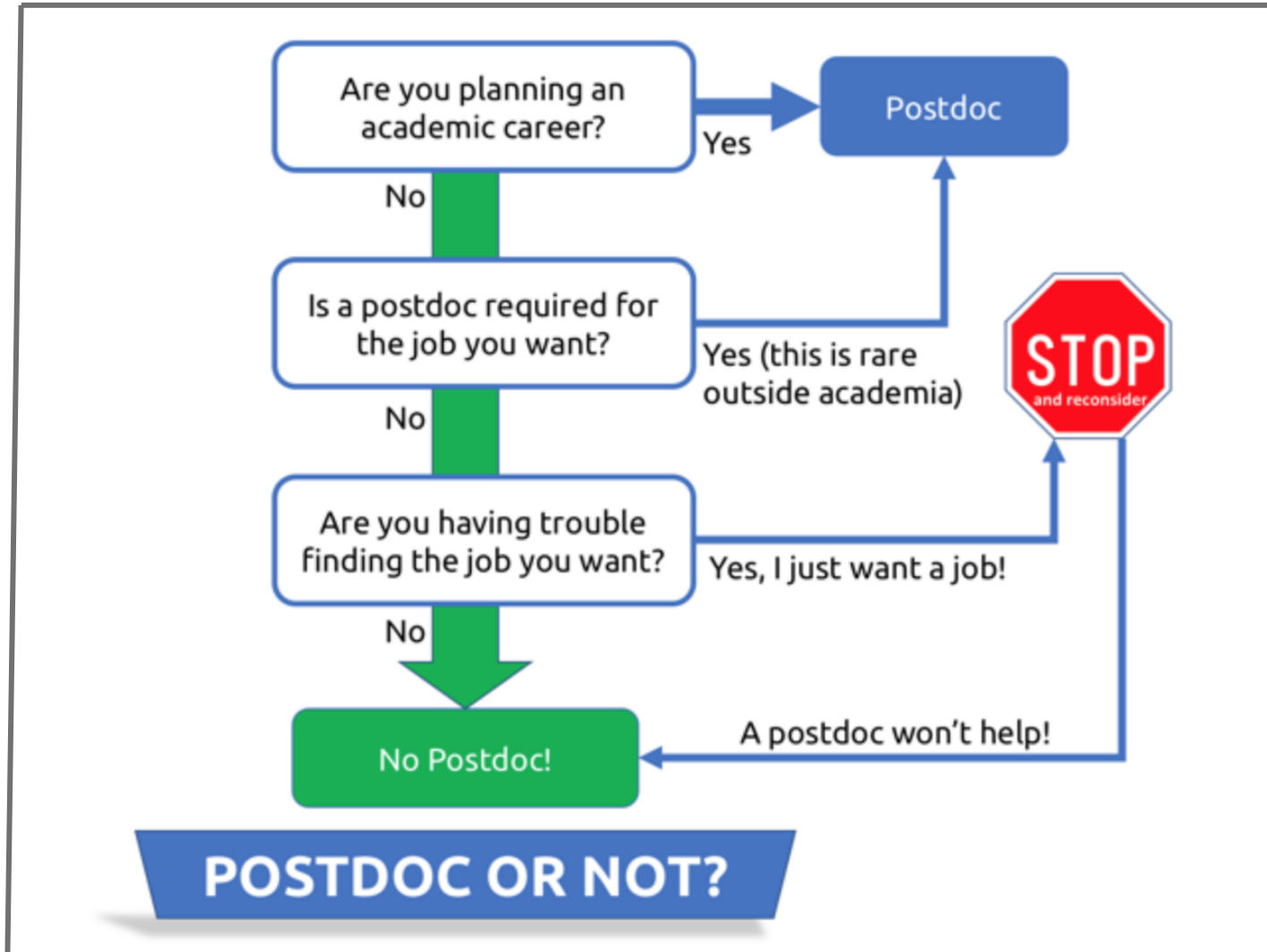
*Have a look at “Mothers in Science – 64 ways to have it all”*

[https://royalsociety.org/~media/Royal\\_Society\\_Content/about-us/equality/2011-06-15-Mothers-in-Science.pdf](https://royalsociety.org/~media/Royal_Society_Content/about-us/equality/2011-06-15-Mothers-in-Science.pdf)



# After PhD – go for a postdoc ?

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# Academic career: After PhD – go for a postdoc !

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- You will be selected on the basis of your research competence
- **What do you need to get out?**
  - Experience with different research environment
  - Experience with new techniques/new research topic
  - Recognition of your ideas
  - Network of future collaborators



## Which supervisor? Which place?

- Experience with different research environment – many universities require postdoc abroad for tenure track assistant professor candidates
- Experience with new techniques/new research topic – going to work with a “hot shot” has advantages and disadvantages...
- Recognition of your ideas/topic – going to work with a junior professor has advantages and disadvantages...
- Network of future collaborators – you meet more people in “famous places”



## How to apply

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- › There are more postdoc positions than good applicants: check websites of Learned Societies and <https://euraxess.ec.europa.eu/>
- › Check website of potential supervisor, institute
- › Contact former PhD students/postdocs
- › To get selected: Motivation letter (see <https://motivationletter.net/motivation-letter-for-postdoc/>), interview

**Or get your own funding ...**



# Many possibilities for applying for funding

- › EU Marie Curie Individual Fellowships
- › (National) Foundations: USA-Fulbright program, UK-Newton International Fellowships, NL-VENI, Germany-Humboldt Fellowship, SNSF-Postdoctoral Fellowship, Switzerland, ....
- › Individual Universities/research institutions: Harvard, MIT, Stanford, Cornell, ETH Zürich, Trinity College Dublin, Max Planck Society, Univ. of Münster, Germany...

**First think of where you want to go, then search for the right funding...**



# Apply for a grant

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- Read the instructions and follow them carefully
- Learn how to write a Grant proposal (free)  
<https://www.hfsp.org/node/5761> The Art of Grantmanship
- Be sure to be ready 1-1.5 months before deadline
- Establish a mock committee for feedback
- Think of who will be judging ...

**Remember: older people like to help young people, so don't be afraid to ask for help**



# Find a good mentor/supervisor !

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Apart from giving scientific guidance, s/he should

- provide training in presentation of results, paper writing
- find funding / help you find funding
- teach you how to write successful proposals
- teach you the « rules of the game » and how to change it
- introduce you to important professional contacts
- give you challenging assignments and opportunities
- provide constructive feedback on unsuccessful proposals or interviews
- give you credit, and advocate you in the academic community

***If you don't get these things from your supervisor/mentor, ask for them. If you still don't get them, try someone/somewhere else.***





# Make publicity for yourself

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Future employers, people who nominate you for prizes, organizers of conferences have to find you

- › Setup your profile on ORCID (with miniCV etc) and make it public
- › Be on googlescholar, publons, researchgate,...
- › Even better: have your own website



# About me



Hi! I am Renata and I am Assistant Professor in Medical Visualization and Visual Analytics at the [Scientific Visualization and Computer Graphics](#) Research Group of the [Bernoulli Institute](#) at the [University of Groningen](#), the Netherlands. Before, I was a Post-Doc at the [Visualization Group](#) of Eduard Gröller, at [TU Wien](#), Austria. I received my Ph.D. in Medical Visualization from [Eindhoven University of Technology](#), the Netherlands, in 2017. The topic of my dissertation was "Visual Analytics for Digital Radiotherapy: Towards a Comprehensible Pipeline", and for the results of my work, I obtained the [Best PhD Award 2018 of the EuroVis Awards Programme](#). Additionally, I was awarded the [Dirk Bartz Prize for Visual Computing in Medicine](#) (1st Place) at Eurographics 2017.

My research focus is on the interface between Visual Analytics, Image Processing, and Machine Learning, with a strong focus on medical applications—in particular, radiotherapy. My specific domains of expertise are Comparative

Missing: what I am particularly proud of



# Make publicity for yourself

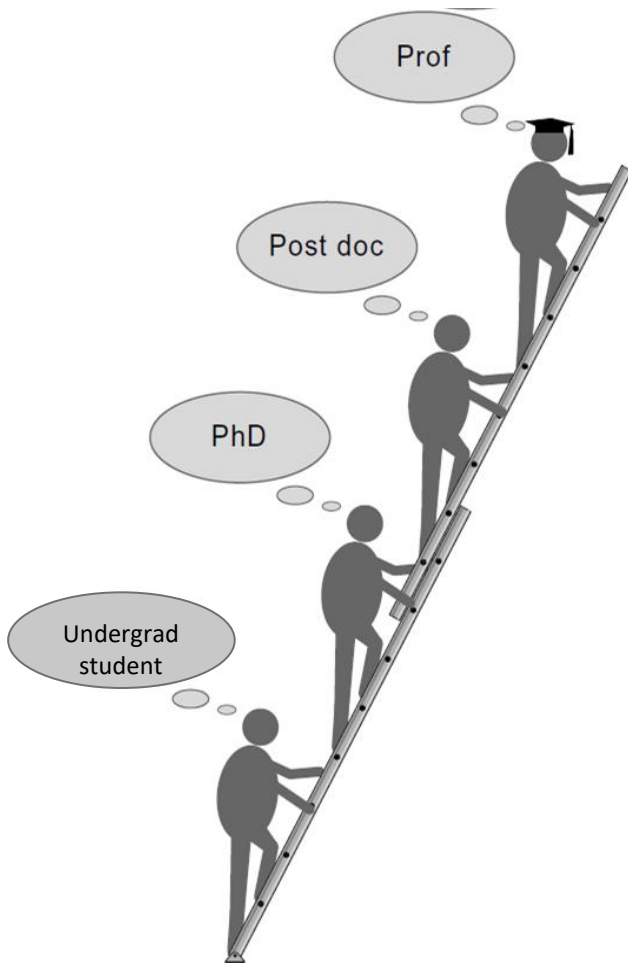
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- › Setup your profile on ORCID (with miniCV etc) and make it public
- › Be on googlescholar, publons, researchgate,...
- › Even better: have your own website
- › But also: **Google thyself**. Want to see what your prospective employer can see? Follow tips on <https://www.sciencemag.org/careers/2020/01/applying-your-dream-science-job-google-thyself>



# Next step tenure track assistant professor... 9/15/2024 | 20



postdoctoral researcher vs  
tenure track assistant  
professor

- Differences in capabilities demonstrated by your CV
- Differences in tasks
- Differences in how your “boss” cares about YOUR career



## Your CV

Good publications – expectations vary per field (physics about 2-3/year as PI)

What else?



## Your CV

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From an advertisement: APPLICANTS MUST HAVE:

- a Ph.D and post-doctoral experience, preferably in different research institutions (Dutch applicants should have minimally 2 years post-doctoral experience outside the Netherlands).
- publications in first rate international scientific journals
- experience in supervising research projects
- the ability to successfully compete for external research funding
- affinity to teaching
- evidence of international recognition

When deciding on application: Difference in behaviour men/women!



## During your postdoc

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- help **supervising** bachelor, master and PhD students
- show **leadership**: start a journal club, organize a workshop
- do **outreach** in schools, participate in open days
- participate in **competitions** (3Minutesthesis, Famelab, Dance your PhD, young speakers contest...) – you will learn speaking techniques and a better talk makes you attractive as invited speaker later and improves your teaching
- apply/ask to be nominated for **prizes/awards**
- **apply for** any type of **money** you can: access to large facilities or computer time, travel grants for conferences, ...
- do some **teaching** during your postdoc and if possible also some **teaching training**



## The announcement

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<https://www.academictransfer.com/en/296980/tenure-track-assistant-professor-experimental-nanophysics-10-fte/>

*First details about research qualification, then:*

As an Assistant Professor you will:

- set up and develop your own research line and research group
- supervise PhD students
- acquire external funding
- promote the societal relevance of your research
- teach in and contribute to the development of the degree programmes of the School of Science and Engineering, especially courses with Physics and Applied Physics content
- contribute to the organisation of the faculty, for example by participating in working groups and committees, in the domains of teaching, research and management.





## The motivation letter

- Not longer than 2 pages
- Demonstrate that you tick many of the boxes
- Extra plusses if they hire you?

Show that you have checked the website of University XX, talk to the person indicated for information, know the country...

**Once more: apply even if you don't tick ALL the boxes!**



# CV and motivation letter

- › See for ex. <https://hwpi.harvard.edu/files/ocs/files/gsas-cvs-and-cover-letters.pdf>
- › Three parts: 1) **Why are you writing?**
- 2) **Why do you fit the job description?** these include a paragraph about your dissertation/current research, one about your future research plans, and one or two about your teaching experience/interests/approach/courses you could offer.
- 3) **Say what you attach**, that you would appreciate **explaining personally & thank** for time and consideration



## Research statement

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- › Have a good research programme, well thought through, innovative, visionary. Concrete for the first 5 years, general outlook for later. With whom are you planning to collaborate at XX, in the country, Europe-wide, worldwide?

For tips see: **“Sell yourself and your science in a compelling personal statement”** Nature | Vol 593 | 6 May 2021 | 153 <https://www.nature.com/articles/d41586-021-01101-z>

<https://grad.ncsu.edu/news/2020/04/how-to-construct-a-compelling-research-statement/>

<https://www.evalantsoght.com/2022/02/phd-talk-for-academictransfer-how-to-write-a-research-statement.html>



# Teaching statement

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- › Try to be non trivial when explaining your teaching philosophy. Also: What would you like to teach (look at programmes of university where you apply)? How would you organize your course? How do you think you can make your course particularly attractive? Mention your experience. Don't forget supervision of bachelor and master students during their final projects.
- › Guide about teaching statements  
<https://cft.vanderbilt.edu/guides-sub-pages/teaching-statements/>
- › <https://www.evalantsoght.com/2022/04/phd-talk-for-academictransfer-how-to-write-a-teaching-statement.html>



## The interview with the committee

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- prepare your lecture well and try it out in front of a critical public;
- If you give it online make sure before that there are no technical problems;
- think of who will be in the audience and tailor your presentation for it;
- prepare for possible questions from committee members.

**This is not a conference presentation** so results are less important than packaging and leaving the right impression.

**Do not talk longer than you are allowed to talk.**



## The interview

Do your homework, *i.e.* know the answers to the following questions:

- Why do you apply for this position?
- Why do you think you are the ideal candidate for this position?
- Why XX and not Cambridge or who knows what?



## The interview

### Be prepared to answer:

- Why should we pursue this research at XX (name of univ.)?
- Who are your competitors worldwide on this subject?
- Why do you think you have a competitive edge? What are the risks involved in this research and what is your plan B for each risk?
- How many people do you need to carry out this programme?
- What sort of funding do you plan to apply for to get these people?
- What facilities/instrumentation do you need to carry out this programme? What sort of funding do you plan to apply for to get these facilities/instrumentation?
- What will be the title of your first grant proposal?



## The interview

Show that you have a vision for your future development:

Be prepared to answer:

- How big do you want your group to be in 5 and in 10 years?  
Why this size?
- How do you plan to organize the supervision of your PhDs and postdocs?
- If you realize that your PhD student is not up to the task you have assigned to him/her, what do you do?
- If you realize that your PhD student is not doing the task you have assigned to him/her, but pursues other issues which are however giving very good results, what do you do?





## The interview

### About you as a person:

- “How would a close colleague of yours describe you?”
- What will be the biggest challenge in coming to XX?
  
- You can be invited to do a SWOT analysis or to name your strongest and your weakest points.

Note: Obviously you should present your weak point as a strength as well!

- What will be your biggest challenge if you come here?



# Interviews with individual committee members

Do your homework....

Make the interviewer aware that you have done your homework...

Ask questions...



## Negotiating the offer

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Wage gap: in the NL – see LNVH report

Female scientists at the 14 Dutch universities earn on average €799 per month less (before tax) than their male colleagues, *i.e.* 13,7%.

You will be told that you cannot negotiate – not true!

Get training in negotiation or train with your mentor

Talk to colleagues, find out what others get...

Ask nat.l network of female professors (LNVH) for help:

[www.lnvh.nl](http://www.lnvh.nl)

**Make sure that the conditions for promotion and when it will happen are crystal clear and written in your contract!**



## Starting...

The first 6 months determine your image for the next 20 years to come.

Find a mentor who teaches you the ropes of that faculty, that university...

Find a guardian angel who becomes your advocate in the community and makes sure you get invitations to national events and to give colloquia/seminars at other universities.

Be pro-active, learn the local language (politics is done in the local language).



# Don't isolate yourself but reach out to others

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"Getting into the practice of saying no saves space for smarter yesses. Your time is your most valuable asset. Don't spend it doing someone else's job." Elaine Welteroth



*Good luck!*

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*The future is bright for women  
(and men) in Science!*



# Thank you for your attention

## More reading:

<https://www.science.org/content/article/should-i-do-postdoc-former-postdocs-share-their-stories>

## **Book advice:**

- Federico Rosei and Tudor Johnston, **Survival Skills for Scientists**, World Scientific;
- Peter J. Feibelman, **A PhD is not enough: a guide to survival in science**, Basic Books
- Ritsert Jansen, **Funding Your Career in Science** Cambridge University Press