



Gender Gap in STEM Disciplines in Germany

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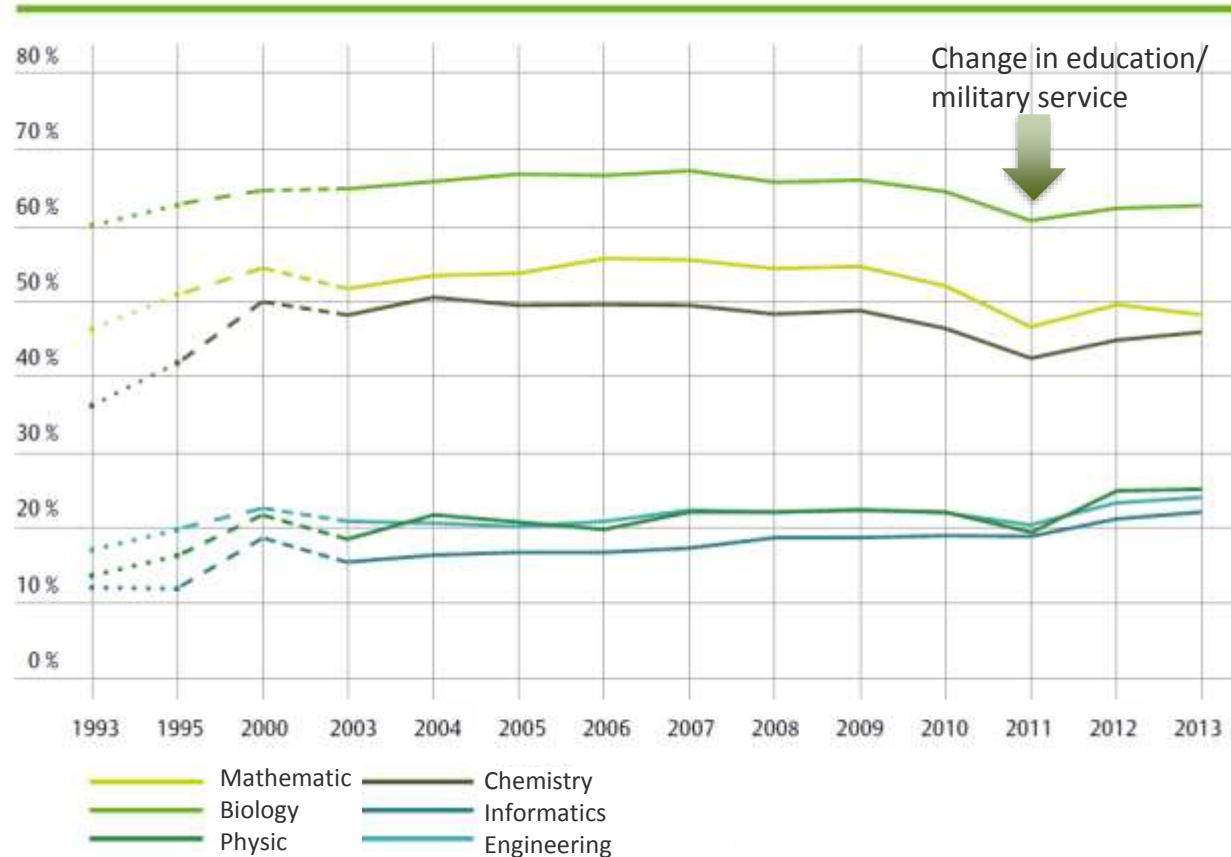




Most famous female German STEM graduate:
Dr. rer.nat. Angela Merkel (1978)

Thesist titel
„Untersuchung des Mechanismus von Zerfallsreaktionen mit einfachem Bindungsbruch und Berechnung ihrer Geschwindigkeitskonstanten auf der Grundlage quantenchemischer und statistischer Methoden“

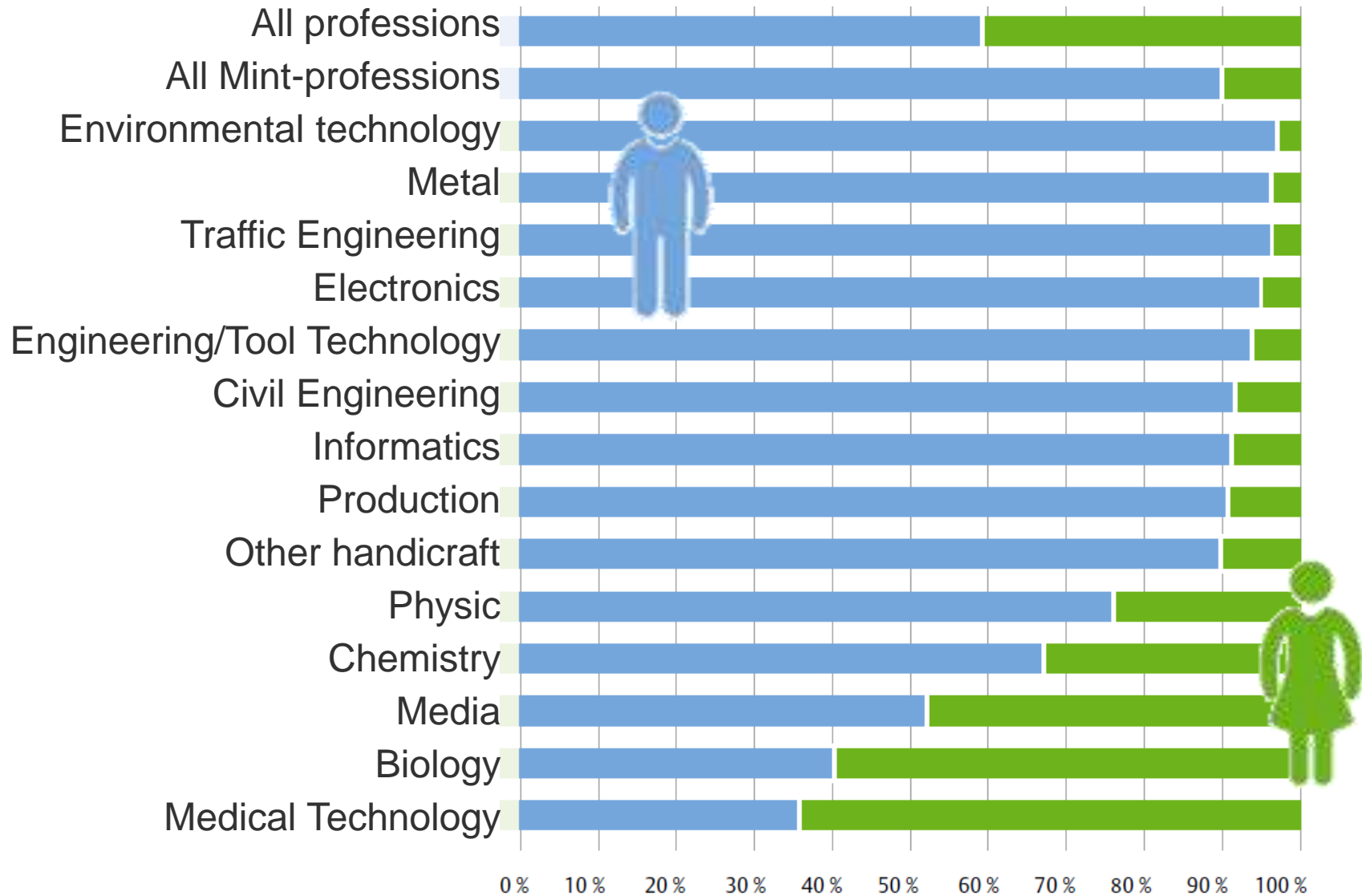
Start of the study



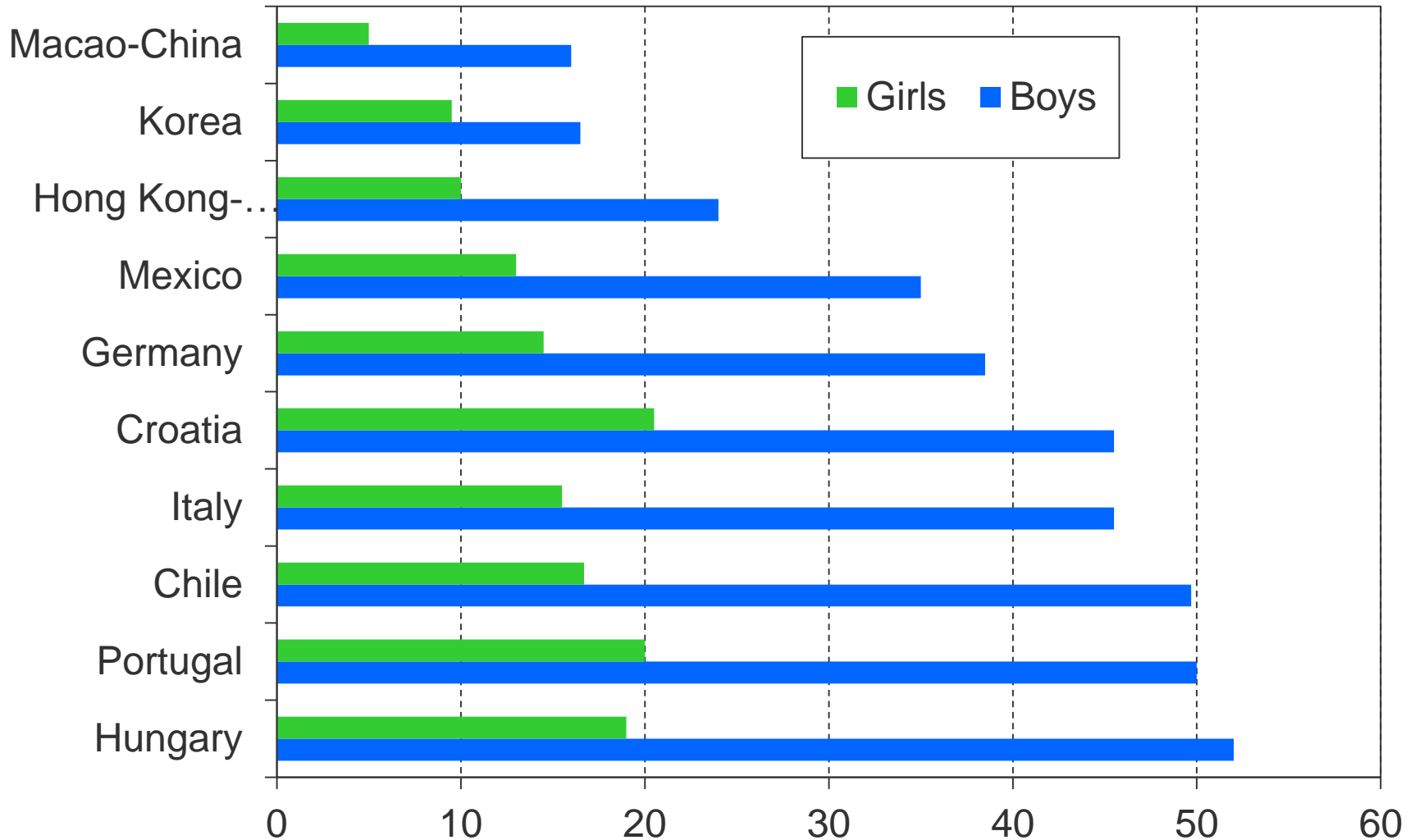
(acatech 2015: MINT Nachwuchs 2 0 15)

Start of the study	2010	2013
	(%)	(%)
Civil Engineering	27.3	29.1
		1.8%
Surveying	30.9	34.3
		3,4%
Electronics	10.4	13.0
		2.6%
Engineering	18.8	20.6
		1.8%
Traffic Engineering	11.7	13.1
		1.4%
Industrial Engineering	19.7	22.8
		3.1%

Carrierpass: Gender balance of MINT-Trainee (2013)



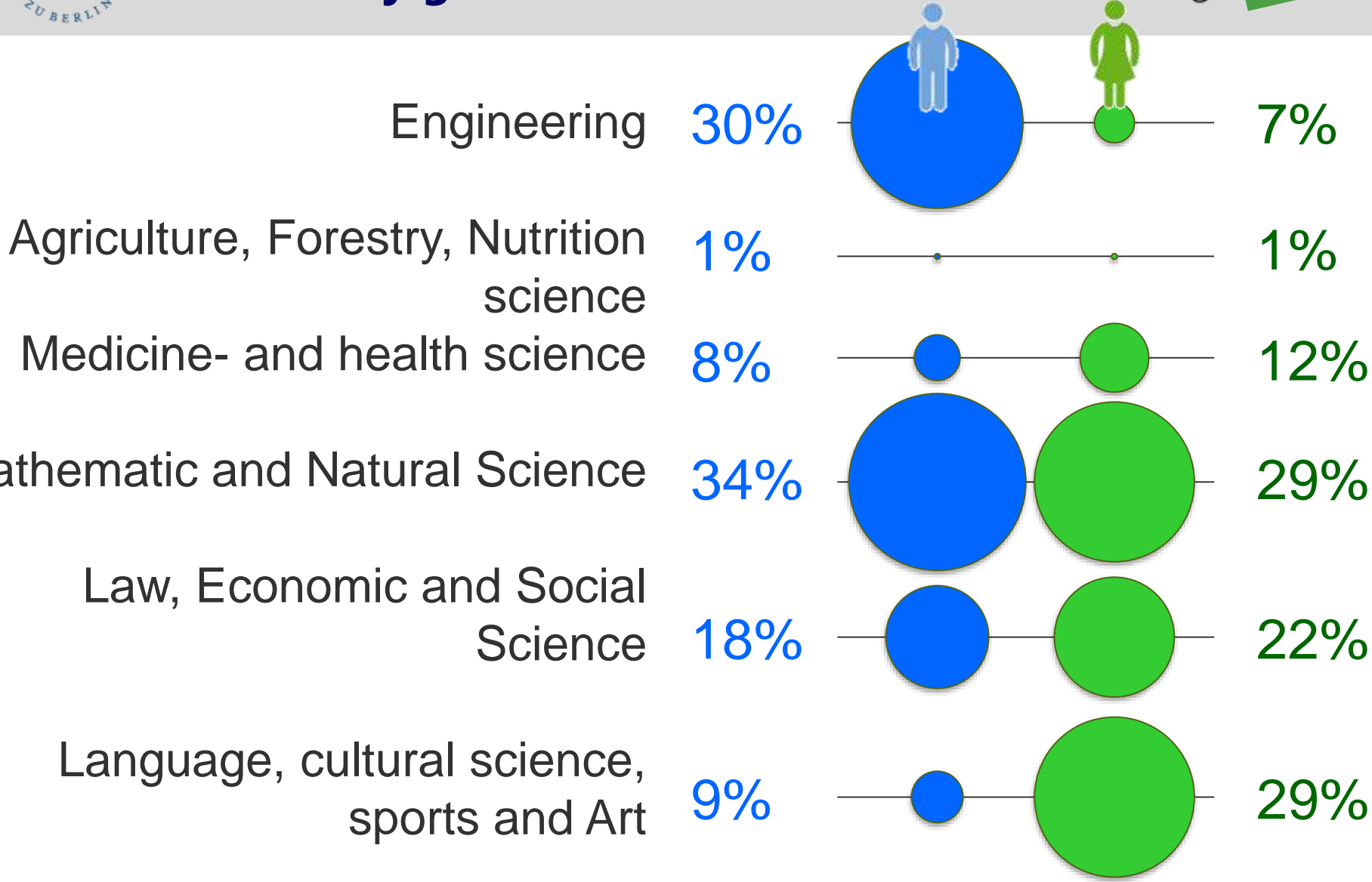
Prejudices: Percentage of students whose parents expect that they will work in STEM occupations

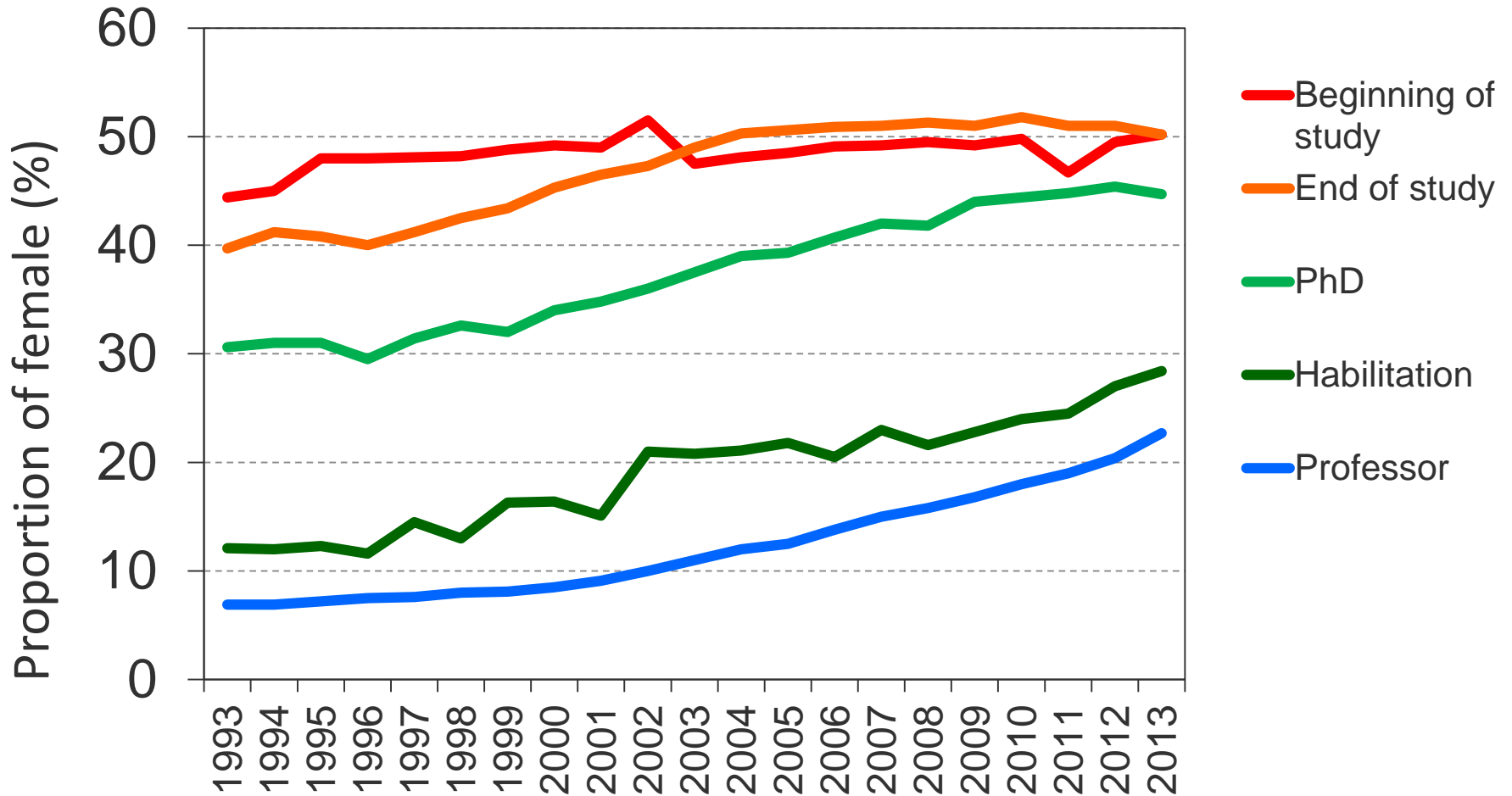


Prejudices for STEM works

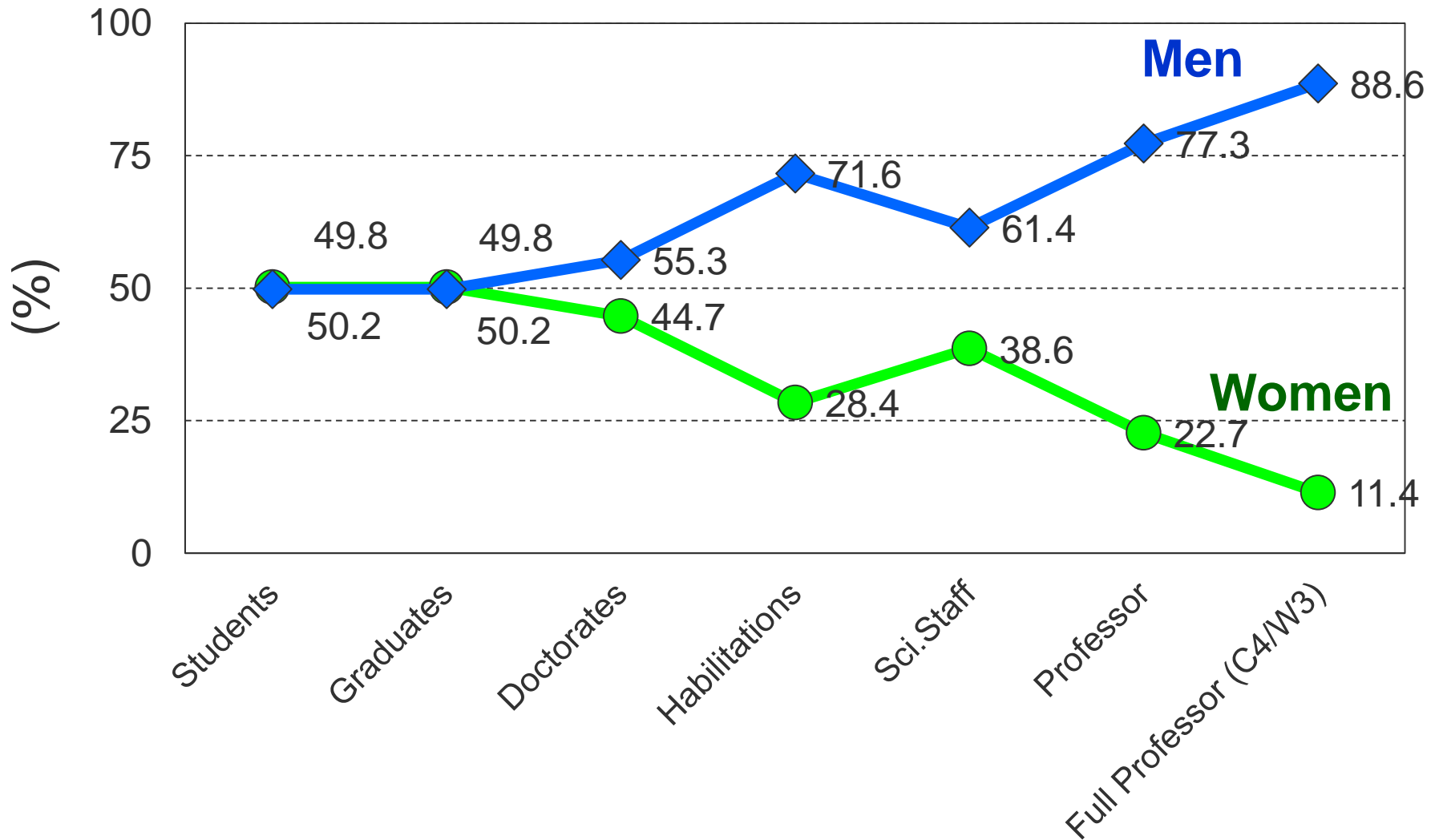
	People		Trainee	
<u>Physical work is hard</u>	58.5	65.7 >	35.2	41.7
<u>Cold</u>	34.1	28.6 >	15.9	2.2
Noisy	66.7	47.0	40.9	52.0
<u>Monotonous/ Boring /Dry</u>	61.7	51.4 >	20.1	16.8
<u>Few interaction with people</u>	64.6	57.2 >	21.0	16.5
Dirty	52.0	48.6	45.5	62.7
Mathematic required	73.1	74.3 <	91.2	93.5
Precise work required	70.3	63.9 <	96.8	96.5
<u>Overtime work required</u>	48.7	39.3 >	9.8	10.7
<u>Easily gets health damage</u>	52.1	46.9 >	19.6	21.3
<u>Technical work is not meaningful</u>	31.2	26.5 >	7.0	9.0

Choice of subject of people with the mark „very good“ in mathematics





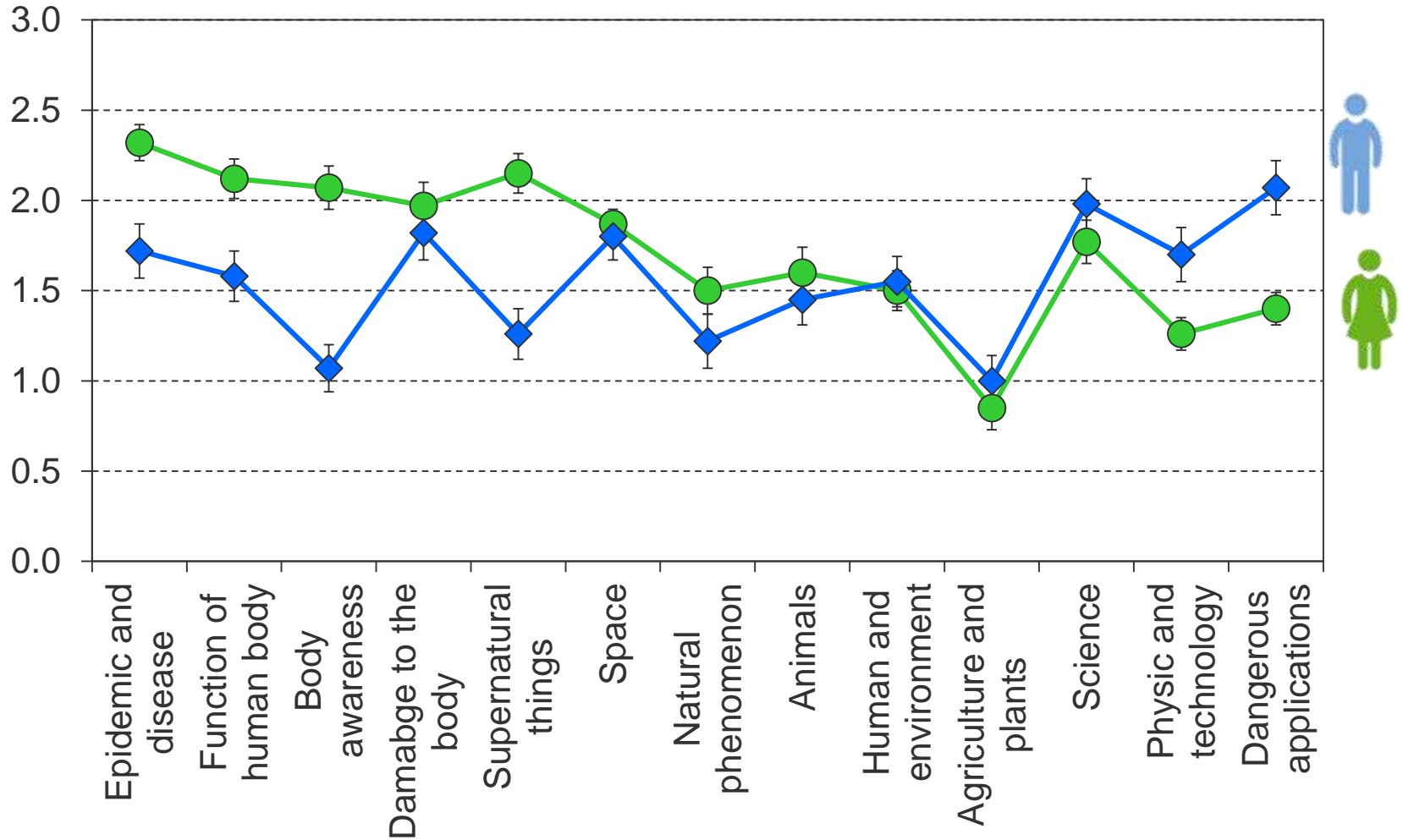
(Statistisches Bundesamt 2013)



Main reason for the low number of women at higher carrier

1: not relevant, 5 highly relevant

Reason why female professors are under represented is, because...	Male (n=871)	Female (n=150)
Balance between family and carrier is difficult	4.0	4.0
Lower ambition than male to become professor	2.7	2.9
Difficult to push through male dominated academic life	2.6	3.8
Does not plan a scientific carrier	2.1	3.0
Still get discriminated (hidden)	2.0	3.3
Have disadvantage at the informal organisation structure and decision making process at recruitment	1.9	3.3
Male Professors promote male students	1.9	3.3
Does not expect working carrier from PhD	2.1	2.2
Conduct the PhD base on part time condition or scholarship and are less integrated in academic life	1.7	2.7
Gets less motivated by the supervisor	1.8	2.8
Gets less paid and shorter contract, thus easier to drop out of the scientific carrier	1.6	2.8
Gets less support and encouragement during PhD	1.4	2.4
Be less active during study as undergraduate assistant	1.5	1.7



(Holstermann and Bögeholz 2007)

Different interests among gender

10 Most interested topics for 17 year old people

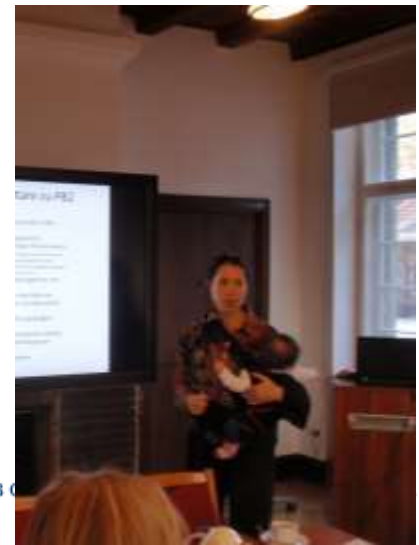
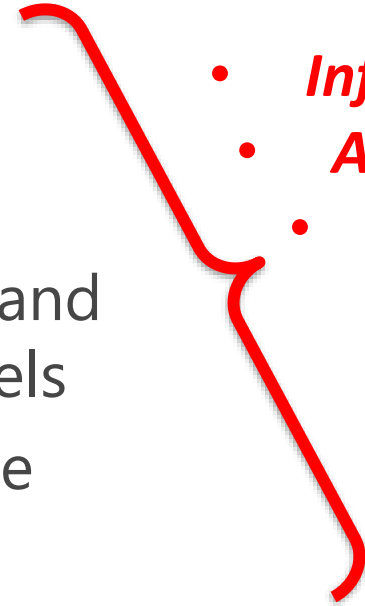
	Girls	Boys
1	Why do we dream and what does it mean?	The mechanism of atomic bomb
2	What do we know about cancer and how can we treat it?	How weightlessness in the space feels
3	What do we know about HIV/Aids and how can the spread put under control?	How computer functions
4	How to do first aid and how to use basic medial equipment	New development and findings in natural science and technology
5	How to train your body to keep in shape and healthy	Phenomenon, that could not be explained by scientists
6	How weightlessness in the space feels	Biological and chemical weapons and their influence on human body
7	<p>→ Biology/Chemistry/Physic in context of</p> <ul style="list-style-type: none"> - Daily life and health - Earth and Environment - Technology - Development of knowledge 	Explosive chemicals
8		Invention and discovery that could change the world
9		Black hole, supernovae and other spectacular phenomenon of space
10		Influence of strong electric and lightning on human body

(Holstermann and Bögeholz 2007)

Effective measures are (asked to professors);	Male (n=845)	Female (n=145)
Baby(child)sitting	86%	83%
Mentoring programs	51%	74%
Coaching for female	46%	63%
Scholarship	46%	52%
Guideline for equal opportunity	27%	38%
Fixing equal opportunity in target agreements	25%	47%
Job guideline for recruitment	24%	53%
Premium to hire female Professors	20%	43%
Equal opportunity officer at each department	20%	34%
Gender specific quota system	17%	46%

- › support from family/parents,
- › encouragement at schools,
- › gender sensible teaching,
- › experimentation in single-sex groups and communication with female role models
- › enough number of women in the same discipline
- › equal pay,
- › reconcilability of family and professional life

- **Information**
- **Awareness**
- **Strategic support**



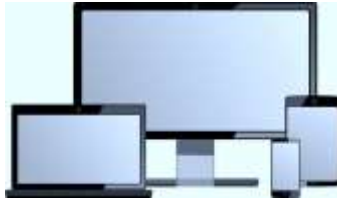
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Main reason for low female proportion in STEM:

- prejudices,
- gender specific interest,
- difficulties in carrier pass

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Prejudices narrow the selection of future professions.

350 possible profession (dual education)
→ 74% of women and 54% of men
concentrate on only 20 professions
(MWFK Baden-Württemberg 2015).

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Opening the mind broaden the possibility for future works and innovation, not only for women but also for men.

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