

8th

International Conference on Women in Physics

Women & Girls in Physics Education

POSTER

# Fascination Science!

## STEM Role Models

Germany

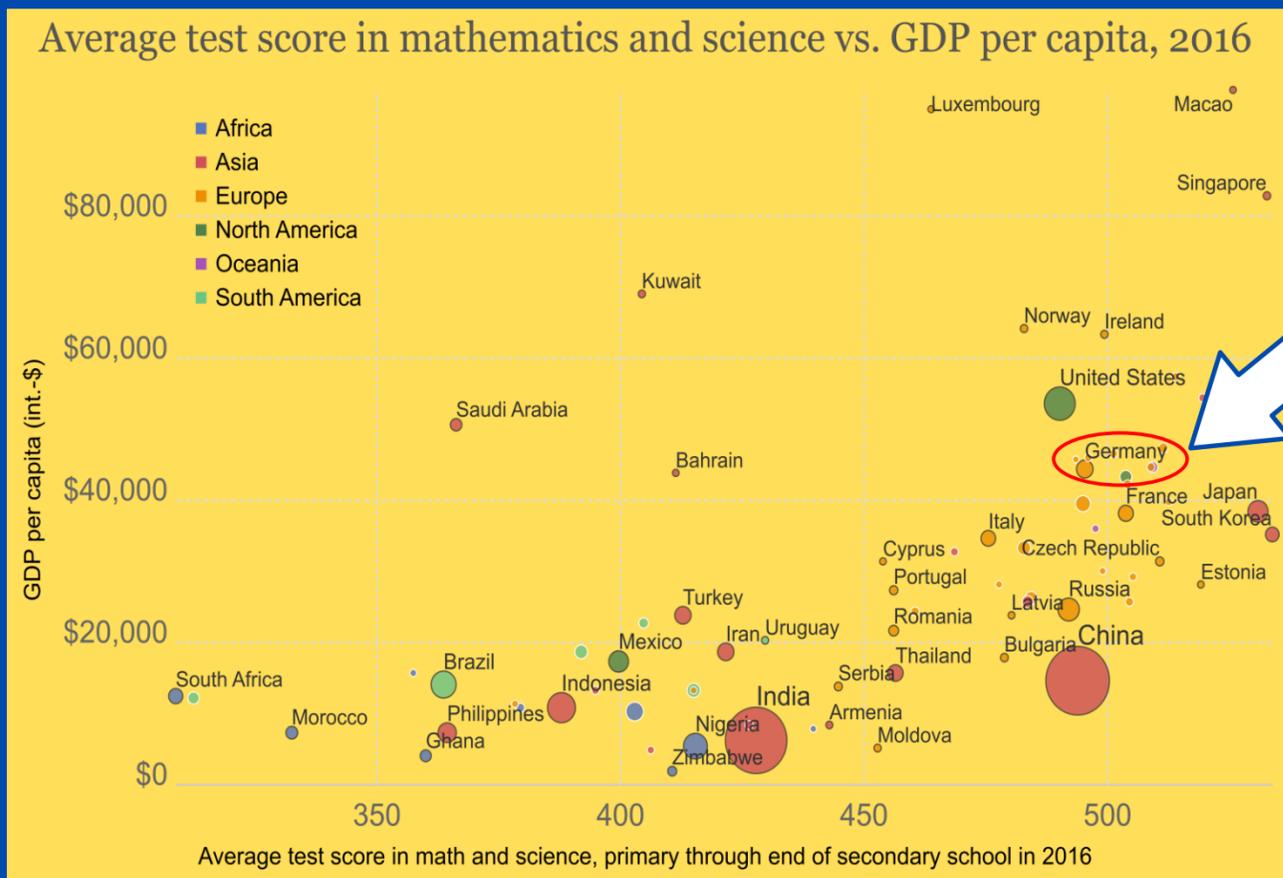
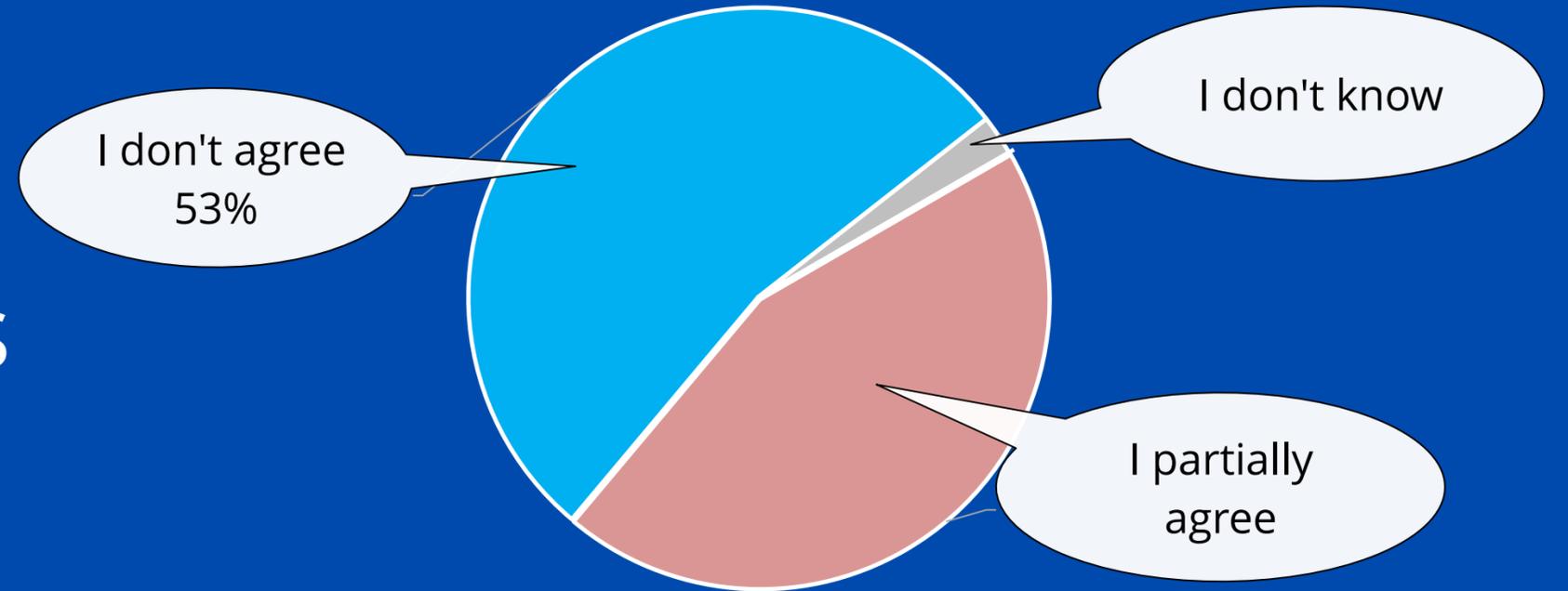
Angelica Zacarias, Agnes Sandner, Iris Traulsen, Ruzin Ađanođlu

# STEM



## Identifying the **need** of modern teaching methods

Do you think that the 'S' in **STEM** is **outdated** and do you find topics such as artificial intelligence, renewable energies, electromobility, new therapies, and vaccines more interesting than physics, chemistry, biology, and medicine?



## What can we do?

The future lies in the actions of today!

## EXTRACURRICULAR ACTIVITIES

Learning key concepts in a continuously changing world



# Research of today for the technology of tomorrow

Are extracurricular activities useful?

**83% of the asked students welcome all chances to participate in events like Girls-Day, LabTours and Internships at University and Research Institutes.**



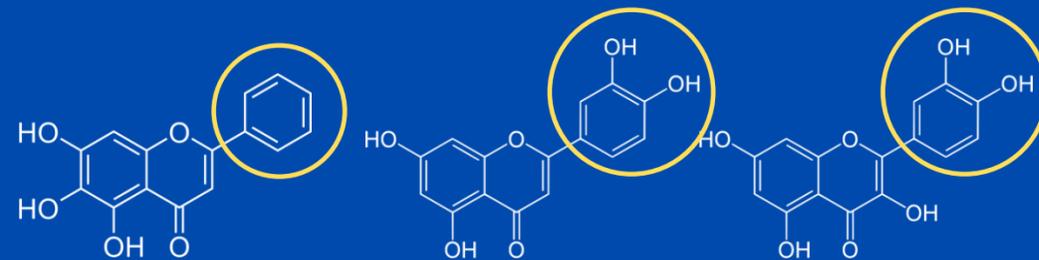
# Internships and LabTours as Strategies to guide women and girls in science

An internship at a research Institute? Is that possible? How? Where?

At the Max Planck Institute of Microstructure Physics, within a theoretical internship we learn together what does it mean to be a researcher.

## Project: Natural Products (NPs) - The future of pharmaceuticals?

25% of new drugs approved worldwide are NPs. Many of which have antioxidant and anti-inflammatory effects.



The Reactivity of these molecules is analysed by calculating their electronic properties using density functional ([n(r)]) methods.

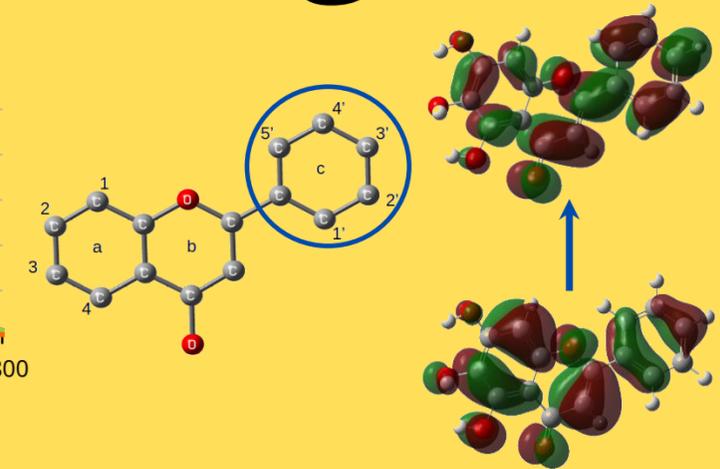
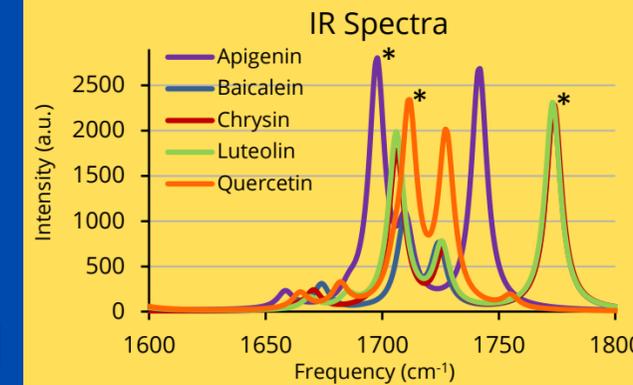
$$n(\mathbf{r}) = N \int d^3\mathbf{r}_2 \cdots \int d^3\mathbf{r}_N \Psi^*(\mathbf{r}, \mathbf{r}_2, \dots, \mathbf{r}_N) \Psi(\mathbf{r}, \mathbf{r}_2, \dots, \mathbf{r}_N). \quad n(\mathbf{r}) = \sum_{i=1}^N |\varphi_i(\mathbf{r})|^2.$$

According to the computed electronic properties, one can control the reactivity of these family of molecules by adding other chemical groups to the ring (c)

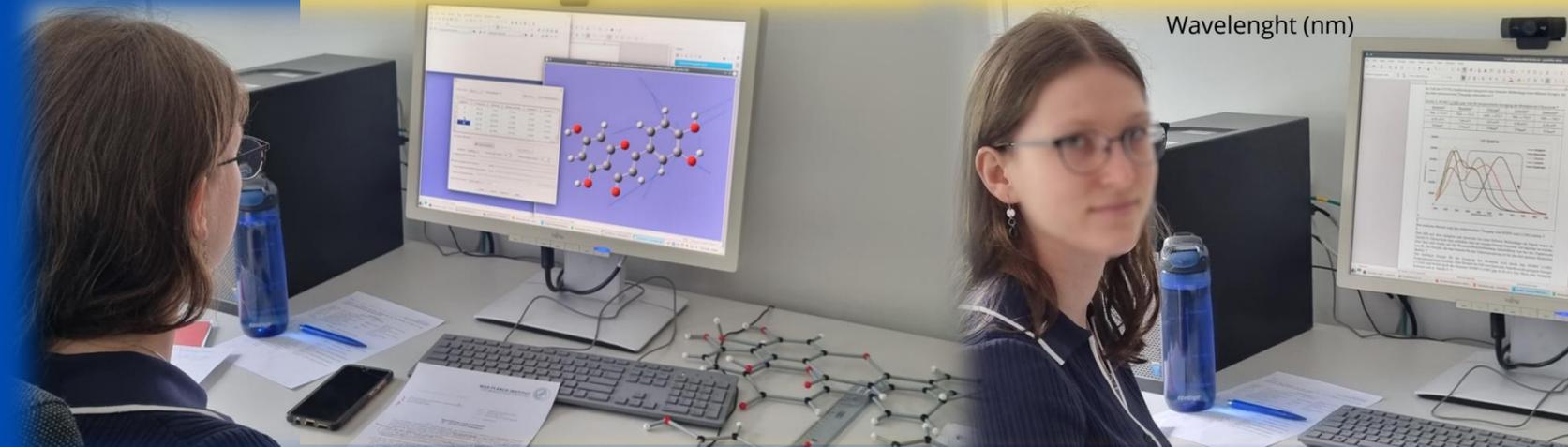
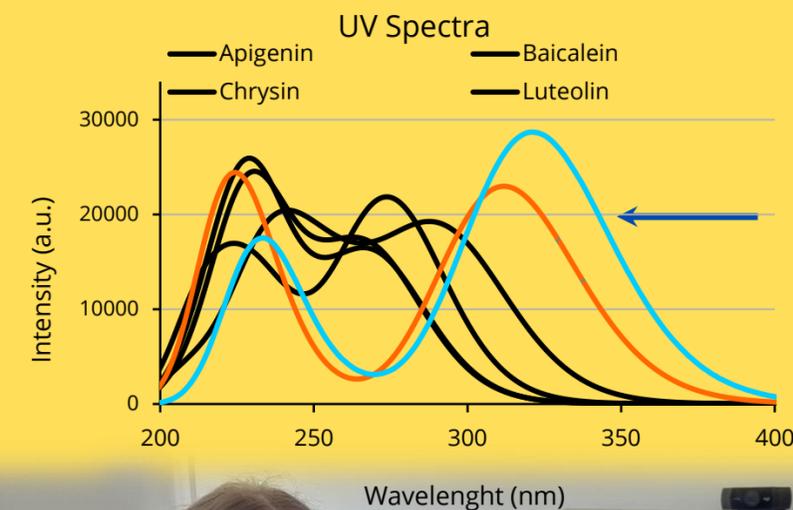
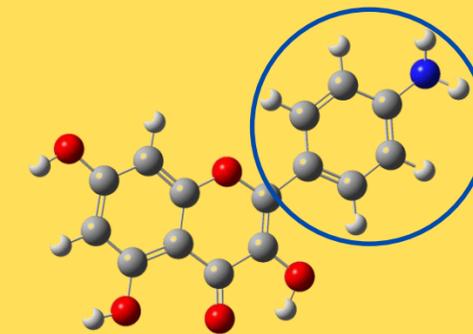
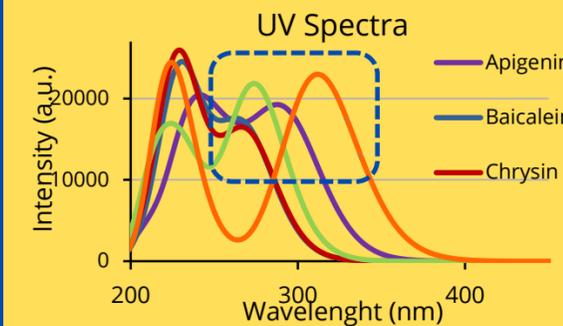


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# Strategies to guide



The final report of the project has the same structure as a typical scientific publication.



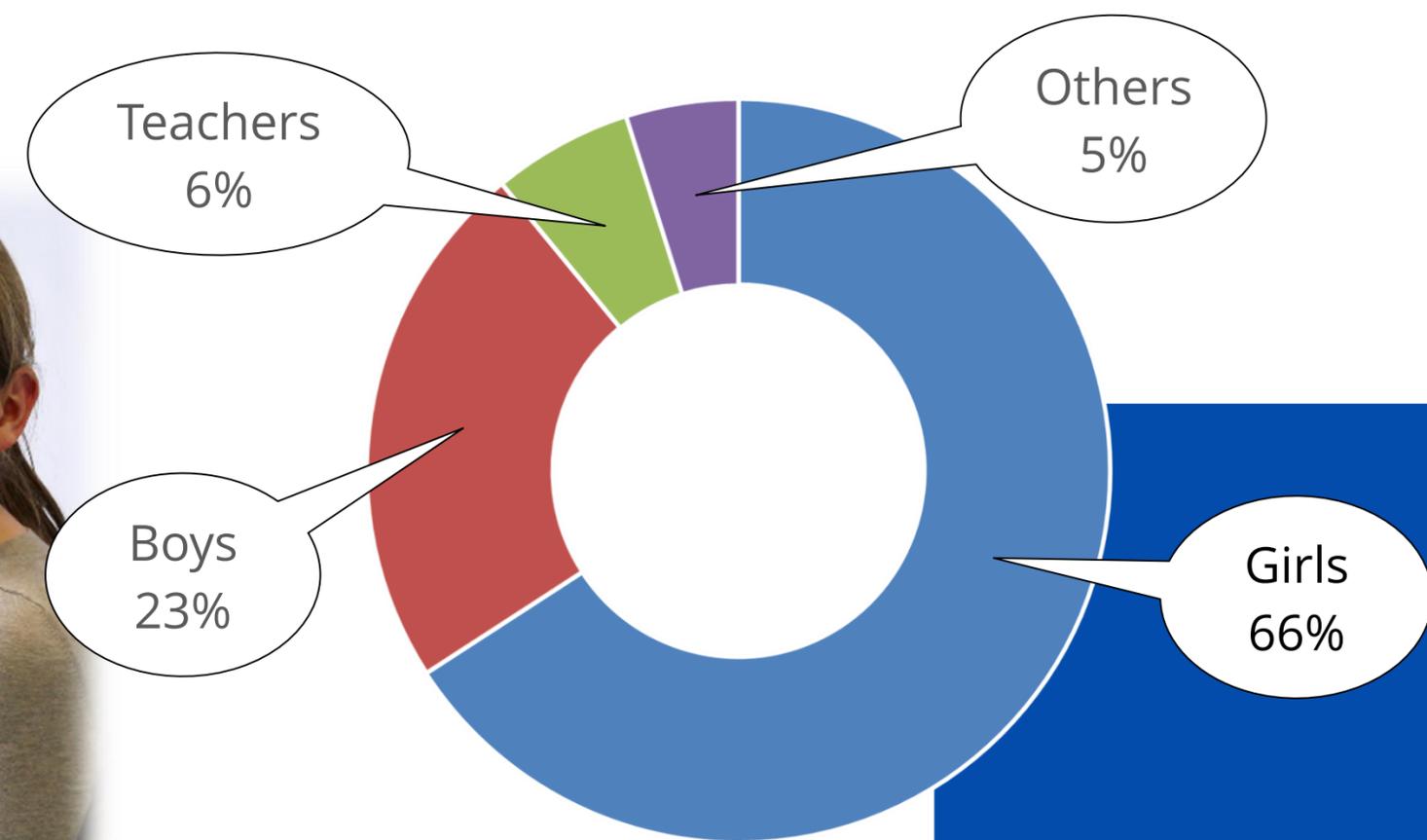
# Fascination Science!

During the webinar sessions (worldwide available via the German Physical Society YouTube channel), the participants meet experienced scientists, get to know their work and learn details about the paths they followed in their scientific career.



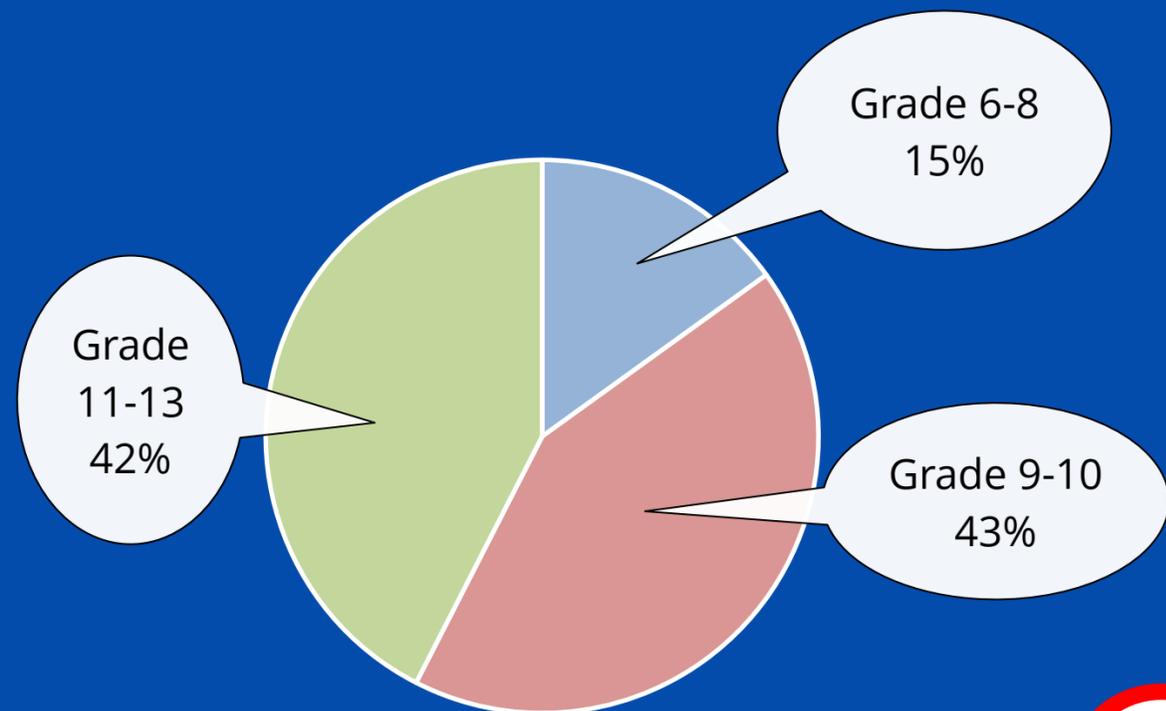
## A career in Science? Is it possible?

NUMBER OF REGISTERED PARTICIPANTS: 82  
WITHOUT CO-ORGANIZERS AND DOUBLE REGISTRATIONS



# Building bridges with technologies of the future

39% of the participant pupils score the Webinars as **very good**, 58% as **good** and only 3% did not find the topic attractive enough.



**Faszination Wissenschaft! MINT Role-Models aus Forschung &...**  
Deutsche Physikalische Gesellschaft e. V.  
22 Videos 865 Aufrufe Zuletzt am 31.05.2023...

Alle ansehen Zufallsmix

Faszination Wissenschaft! MINT Role-Models aus Forschung & Entwicklung  
Organisiert und durchgeführt wird diese Veranstaltung vom AK Chancengleichheit der Deutschen Physikalischen Gesellschaft, der

- 2 So war das eigentlich nicht geplant! von Ina Reichel  
Deutsche Physikalische Gesellschaft e. V. • 411 Aufrufe • vor 10 Monaten
- 3 Physik, Data Science und Consulting als Physikerin in der IT Beratung von Katrin Reininger  
Deutsche Physikalische Gesellschaft e. V. • 435 Aufrufe • vor 10 Monaten
- 4 Faszination Wissenschaft! | Einführung Webinare, 05. November 2021  
Deutsche Physikalische Gesellschaft e. V. • 194 Aufrufe • vor 1 Jahr
- 5 Faszination Wissenschaft | Was japanische Körbe mit moderner Wissenschaft zu tun haben; Felix Küster  
Deutsche Physikalische Gesellschaft e. V. • 221 Aufrufe • vor 1 Jahr
- 6 Faszination Wissenschaft! | Gott und Physik - Wer braucht w Franziska Heddergott  
Deutsche Physikalische Gesellschaft e. V. • 228 Aufrufe • vor 1 Jahr
- Faszination Wissenschaft! | Einsatz von Licht im digitaler Zeitalter: Viktoria Rutckaia



Webinars available in YouTube

Search Keywords: **Faszination Wissenschaft! DPG**

Target group: 6.-13. Class grade



# ROLE MODELS

## Role models and other drivers for a STEM career multiple selection



Parents with STEM careers

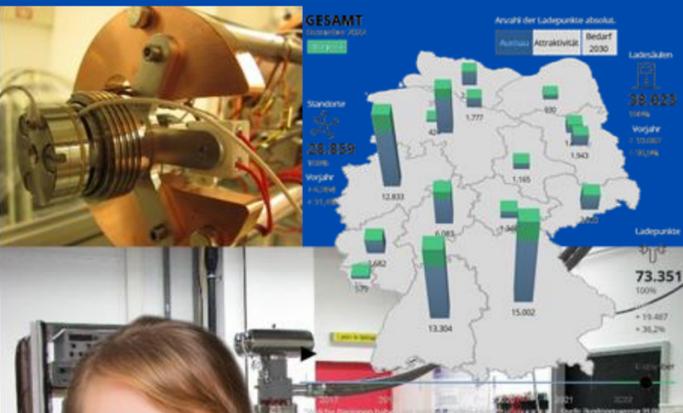
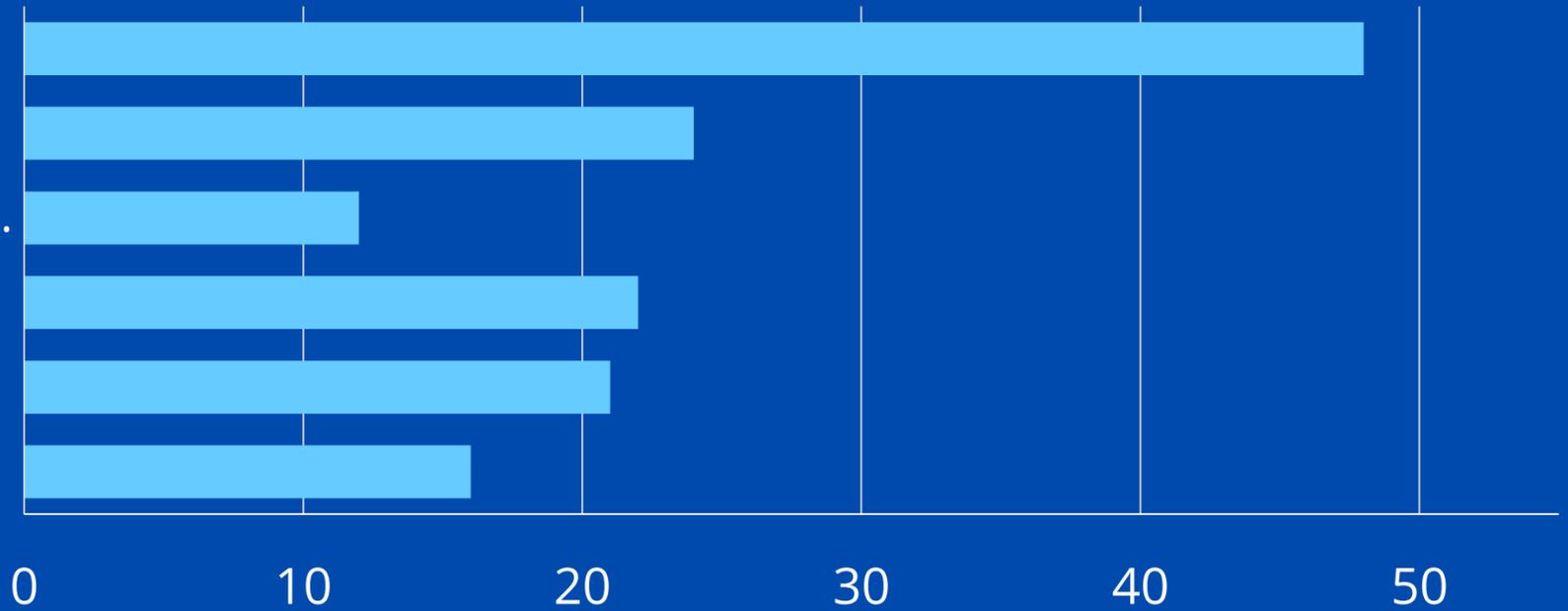
Sci-Fi Movies, Games

Public figures with STEM...

Financial advantages

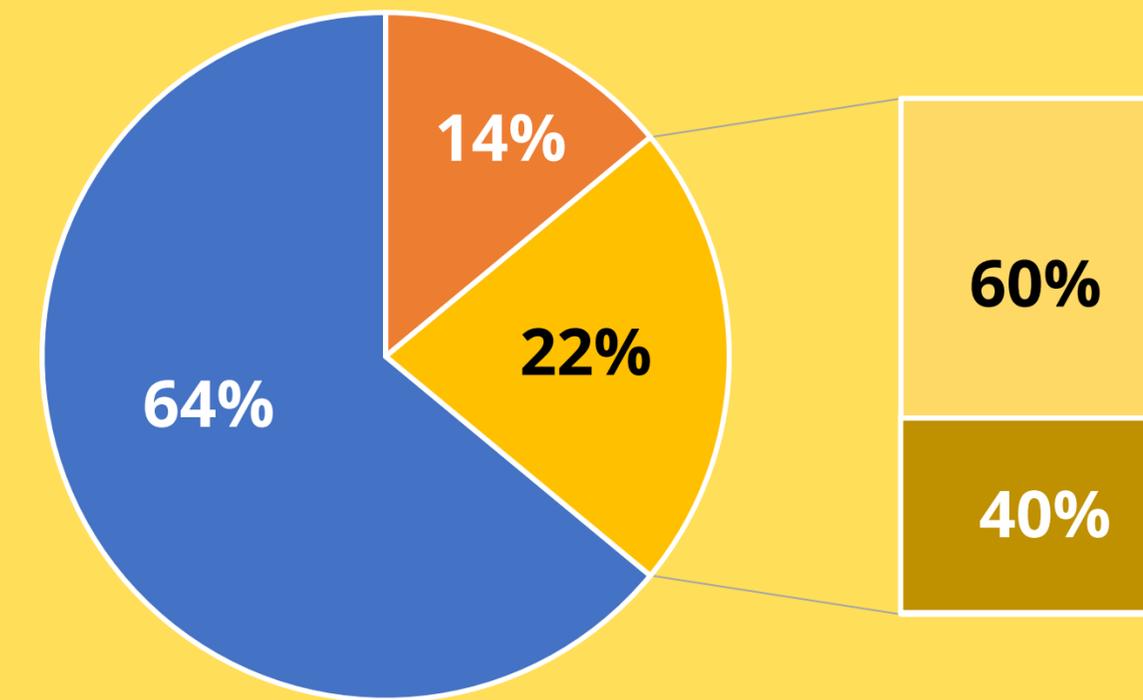
Own STEM teacher

Challenging topics



### Equal opportunities [%]

Do you think you have the same opportunities to pursue a STEM degree / career as other students your age?



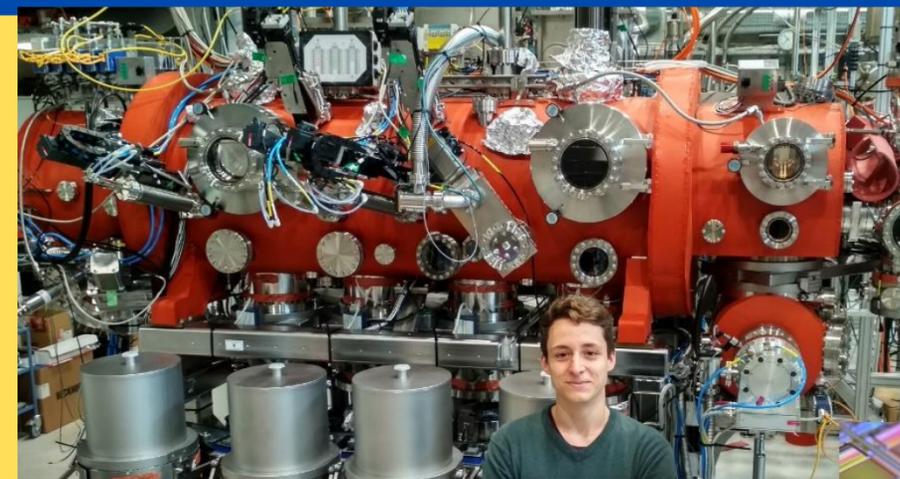
■ Yes   
 ■ I don't know   
 ■ No

60%

40%

No, I don't have the same opportunities due to gender bias.

No, I don't have the same opportunities for other reasons.





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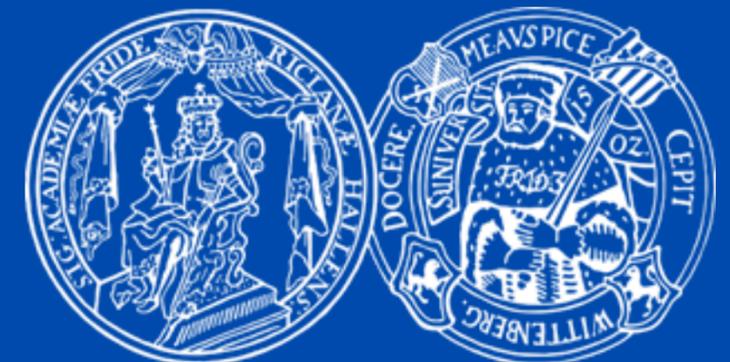
**Halles**  
**Schülerlabor**  
**für Physik**

**ΦAKC<sup>25</sup>**

KOMMISSION CHANCENGLEICHHEIT  
IN DER CHEMIE

**GDCh**

**THANK YOU**



MARTIN-LUTHER-UNIVERSITÄT  
HALLE-WITTENBERG