

1. Basics of research work

1.3 Scientific institutions and organizations, scientific conferences

What is the character of the experimental scientific work?

Individuals are very rare, they bring new ideas, but they could not be competitive in performing all necessary experiments or observations

Scientific research is a typical team work



<http://www.centenary.org.au/p/ourresearch/immunity/tcellbiology/>

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What institutions are involved in the scientific research?

1) Universities

The symbiosis of pedagogical and scientific activities.

Positive correlation between the quality of research and teaching.

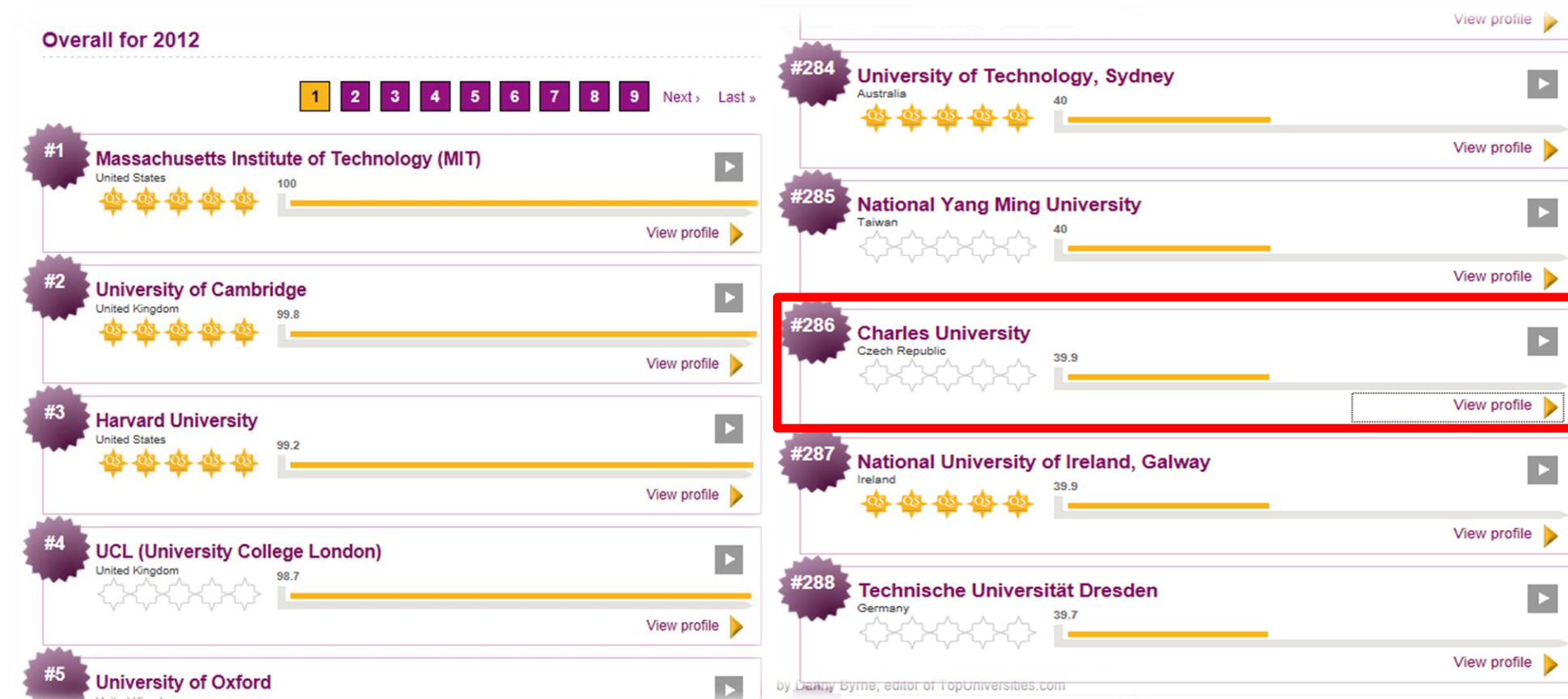
With respect to the quality of the scientific research the best universities are located in the USA and UK

The evaluation of the quality of the particular university might be rather dependent on the purpose of the evaluation.

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World University Rankings according to the quality of their research and teaching activities
Harvard, Yale, Cambridge and Oxford are usually among the top 5



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Scientific research is usually inherent part of the mission of good university

STANFORD UNIVERSITY

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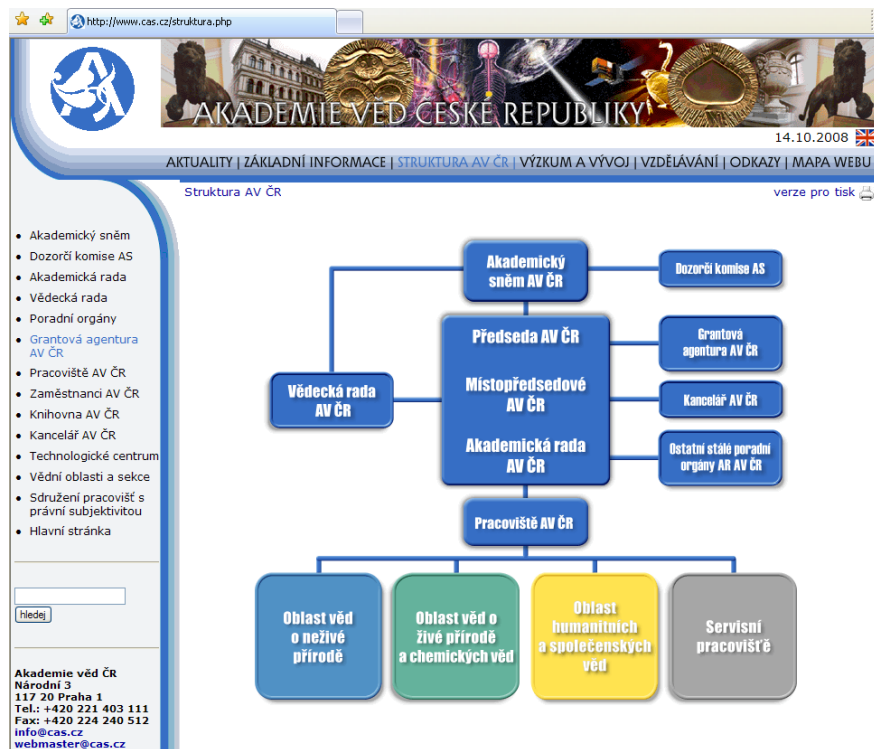
- » Stanford scientist teaches online science-writing

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2) Specialized research institutions

- In contrast to universities, the emphasis is on the scientific research
- They are often involved in Ph.D. programs and collaborate closely with universities



- Some examples of well known research institutions:

- Max Planck Society, Germany
- RIKEN, Japan
- Academy of Sciences, Czech Republic
- Governmental or private research centres

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Scientific team - constitutes a basic unit of every scientific institution, it is usually international

The interconnection between individual teams within the institution is crucial for the efficiency of the whole institution.

The composition of research teams:

- is the result of the existence of scientific authorities in the field

- is the result of certain strategy, e.g. modern topics, applicability, etc.

The screenshot displays a website for the Department of Experimental Plant Biology. On the left is a navigation menu with categories like 'Department of Experimental Plant Biology', 'Department of Physiology', and 'Erasmus'. The main content area is titled 'Science and research' and lists several research teams, each with a representative image and a brief description of their work. The teams include Plant Cell Biology and Biotechnology, Cell Morphogenesis, Cell growth and differentiation, Plant Ecological Physiology, Physiological Anatomy, and Plant Morphogenesis Regulatory Factors. At the bottom of the page, there is an 'Erasmus in Prague' banner and a row of logos.

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What is the structure of „healthy” research team?

- **Group leader** - he/she is responsible for the scientific quality of the research, co-ordinates the work, he/she is usually the holder of some important degree like Professor or Associated Professor
- **Research assistants, postdocs** - they are the main "power" of the team, they are usually in their best age (up to 35 or 40), the most requested temporary positions worldwide.
- **Specialists** - experts in particular methods, with no scientific ambitions of their own
- **PhD students** - they work on their thesis under the supervision of the group leader or some of the postdocs, the thesis must fit into the profile of the team.
- **Master students** - they work on their master thesis, topic might be broader
- **Bachelor and younger students** - help with the laboratory work, very good for the orientation in the field
- **Laboratory technicians** - they are essential to keep the lab in good shape. Sometimes, succeeding or failing to succeed depends entirely on their skills.

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How people in science see each other



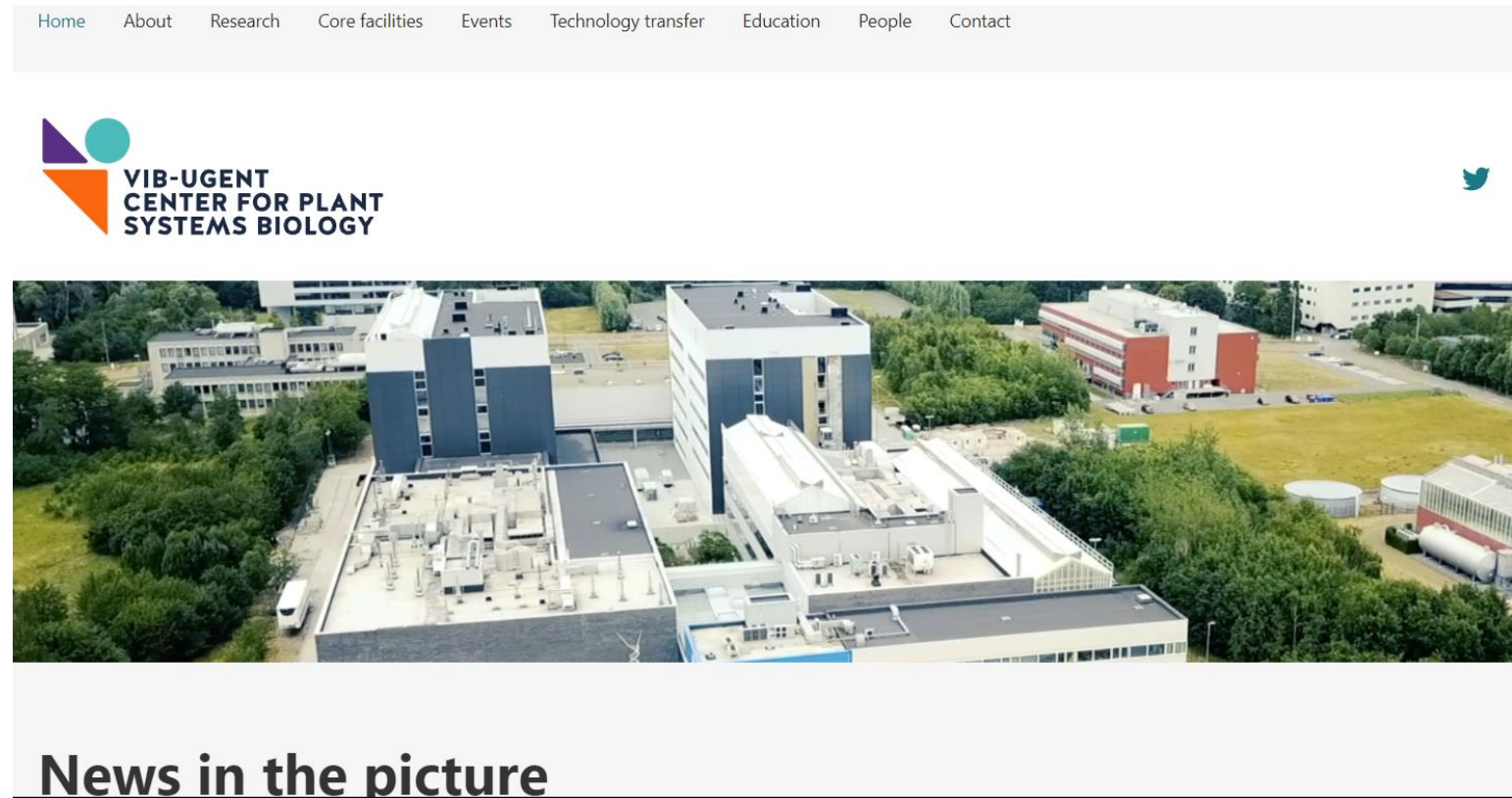
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What is the structure of „healthy” research team?

The structure is not rigid, it is gradually changed depending on the improvement of the students and quality of the group leader

The relationship between teacher and pupil (master/apprentice) is crucial to the transfer of knowledge



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VIB-UGENT
CENTER FOR PLANT
SYSTEMS BIOLOGY

News in the picture

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What is wrong in the team profile?

- Too many scientific topics or their inconsistency
- The absence of students or too many students
- The inability of the group leader to properly manage and discuss all the individual research projects in the group. This could lead to fatal consequences such as scientific fraud, overlooking mistakes, etc.



[Free Access](#)

Re-evaluation of phytohormone-independent division of tobacco protoplast-derived cells

Jeff Schell, Ton Bisseling, Marion Dülz, Henk Franssen, Klaus Fritze, Michael John, Tatjana Kleinow, Angela Leßnick, Edvins Miklashevichs, Katharina Pawlowski, Horst Röhrig, ... [See all authors](#) ▾

First published: 09 October 2008 | <https://doi.org/10.1046/j.1365-313X.1999.00404.x> | Citations: 13

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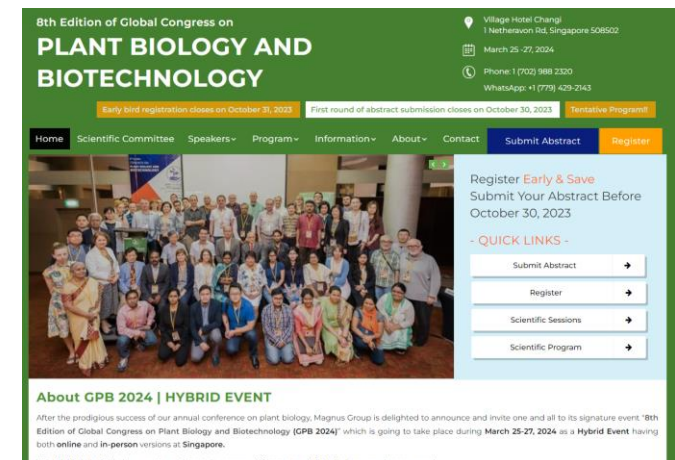
The following paper was submitted to *The Plant Journal*. After peer review and revision it was accepted. Following the discovery of **scientific fraud** in the Department of Genetic Principles of Plant Breeding at the Max Planck Institute for Plant Breeding in Köln, a wide-ranging group of researchers was assembled to repeat some key experiments. The outcome, described in the paper below, is that the published data from the Köln MPI on phytohormone-independent cell division were not reproducible. This concerns papers dating back to 1992.

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Scientific meetings

- Ideal platform for the effective and fast exchange of information and experience
- Congresses, symposia, seminars, courses (workshops), etc.
- Congresses in the field of plant experimental biology: [FESPB](#), [ASPB](#)
- Conferences/symposia:
 - [Gordon Research Conferences](#) - around 300/year
 - [Keystone Symposia](#) - around 100/year
 - [Cold Spring Harbor Conferences](#)
- Be careful about dubious conferences - „trading“ with „scientific tourism“ as a phenomenon of these years



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Scientific meetings

Recognizing **suspicious/predatory** conferences already from an email

Dear Kurtovi? Katarina,

Good Wishes.

We understand due to your busy schedule you might have missed the email, It's an extreme privilege for us to announce the upcoming **European Congress on Human Genetics(CPD Accredited)**, a prestigious conference taking place on **November 06-07, 2023 in Paris, France**.

After going through your previous article titled "**Production of Virus-Free Garlic Plants through Somatic Embryogenesis**". We would like to know your interest to participate in our as a **Speaker** for the conference.

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Attending a scientific conference as a student

So your supervisor decided to send you to your first conference?

Now what?



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Attending a scientific conference as a student

Registration and abstract submission

- Registration form usually on the conference webpage
- Fill all the information carefully and correctly



PERSONAL DATA

We would like to thank you for your interest in the Auxins and Cytokinins in Plant Development Symposium (ACPD 2023). Kindly fill in your personal data. You will receive an automatic confirmation with a password to your e-mail address. Please use your password for booking more services and your payment.

Personal and contact details

Gender*: F M Not specified

Title:

First name*:

Last name*:

E-mail*:

E-mail validation*:

Phone*:

Fax:

Attendance type*:

Who covers the expenses connected with your participation at the event?*

- Myself
(I am a private individual – I do not need a final invoice for tax purposes, a payment confirmation is sufficient.)
- Organization - Nontaxable
(Correct invoice details are required. No amendments after payment will be possible.)
- Organization - Taxable
(Correct invoice details are required. No amendments after payment will be possible.)

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Attending a scientific conference as a student

Venue

- Either at a hotel or a conference center
- Accommodation may be provided within registration fee on the conference venue, or you organize your own accommodation
- The accommodation choice depends on your budget and distance to the conference venue

Don Orione Artigianelli, Venice



Leistungszentrum Herzogenhorn, Feldberg



Conference Centre City, Prague

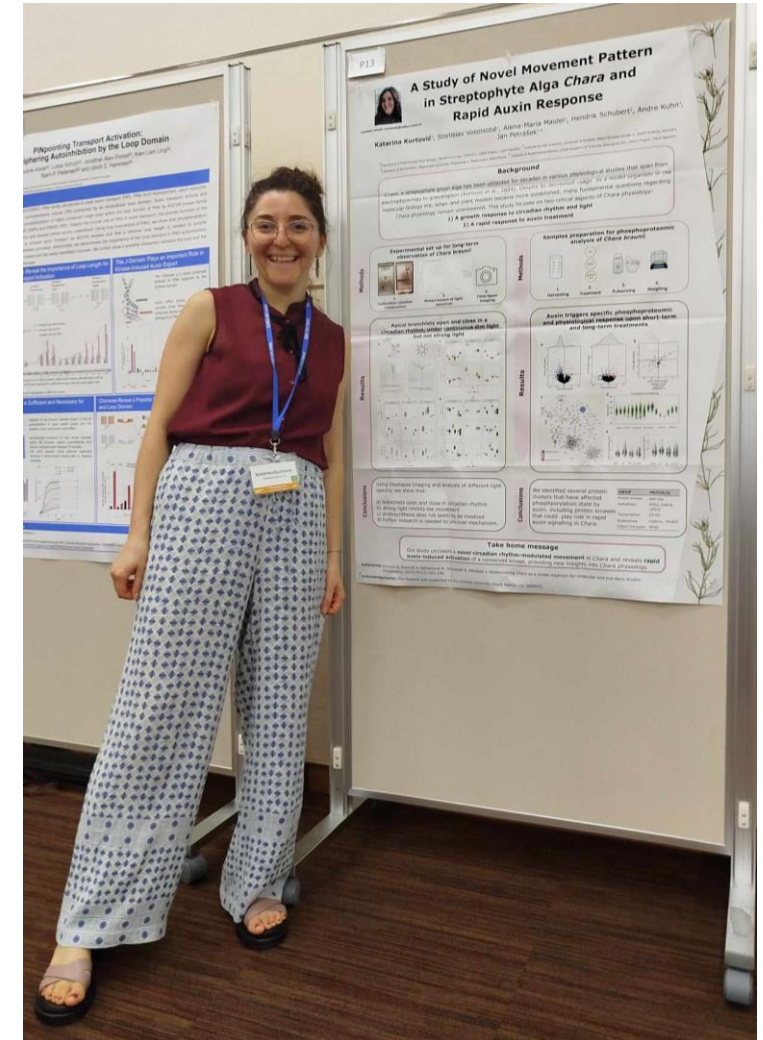


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Attending a scientific conference as a student

Poster

- Can be made using PowerPoint, Inscap, Adobe Illustrator
- Make sure that the text is **nicely visible**, minimal letter size 20 pt
- Poster is **not a scientific paper!** Not all your data should go there.
- Usually, you are presenting your poster at dedicated times called **“Poster session”**



<https://betterposters.blogspot.com/>

<https://www.animateyour.science/post/how-to-design-an-award-winning-conference-poster>

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Scientific contributions at the seminars and conferences

Oral contributions at the conference

- **Talks can be of various length**
- Flash talk/elevator pitch 1-5 min
- Short talk 12-15 min
- Invited talk 30-40 minutes

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Scientific contributions at the seminars and conferences

Flash talk - what makes a memorable talk?

- We are **NOT INTERESTED** in you squeezing all your preliminary data onto that one slide
- **Keep it simple**
- You want to introduce yourself in a way that others can think "**I really (don't) want to talk to this person about their research**" and then come and ask you about the details later (or not)
- Give us a x-minute insight into what drives you
- Show us your spark, **not all your data**, or that piece of code you wrote

*instructions by Johannes Jaeger for Venice Summer School in Evo-Devo 2023

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Conference networking, social media networks

Conference networking - a crucial component of attending a conference

Some tips for students

1. Do your **homework** – identify in advance who you want to speak to
2. Sign up for organized events, like meet and greets, cocktail hours, and off-site tours
3. Prepare a quick sentence of **how you'll introduce yourself** (up 30 seconds)
4. Attend **poster sessions** – a great way to meet other students
5. Send a **follow-up note/email**
6. Connect on social media



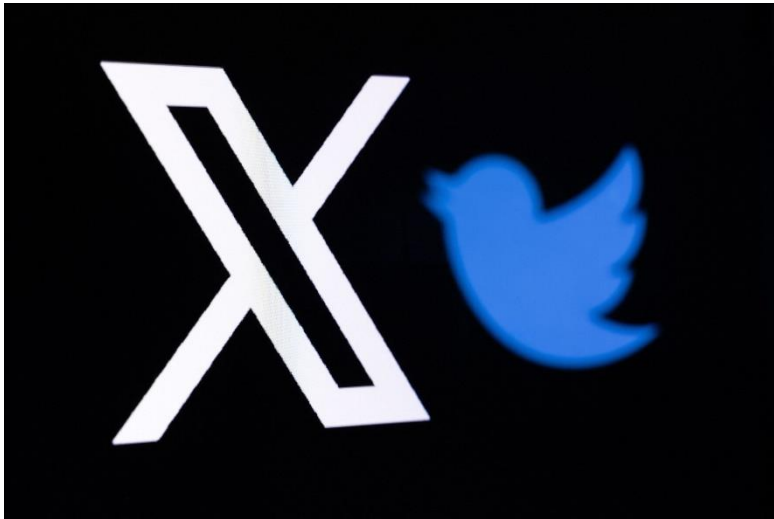
<https://heysciencesam.medium.com/10-tips-for-easier-networking-at-scientific-conferences-bde2a8ccc72a>

<https://plantae.org/plantaepresents-building-your-professional-scientific-network/>

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Conference networking, social media networks

Social media networks



LinkedIn

R^G
ResearchGate

mastodon

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Conference networking, social media networks

Social media networks

- can be a great way to share your work on a broader scale
- connecting with other researchers
- finding positions (Master's, PhD, Post-doc)



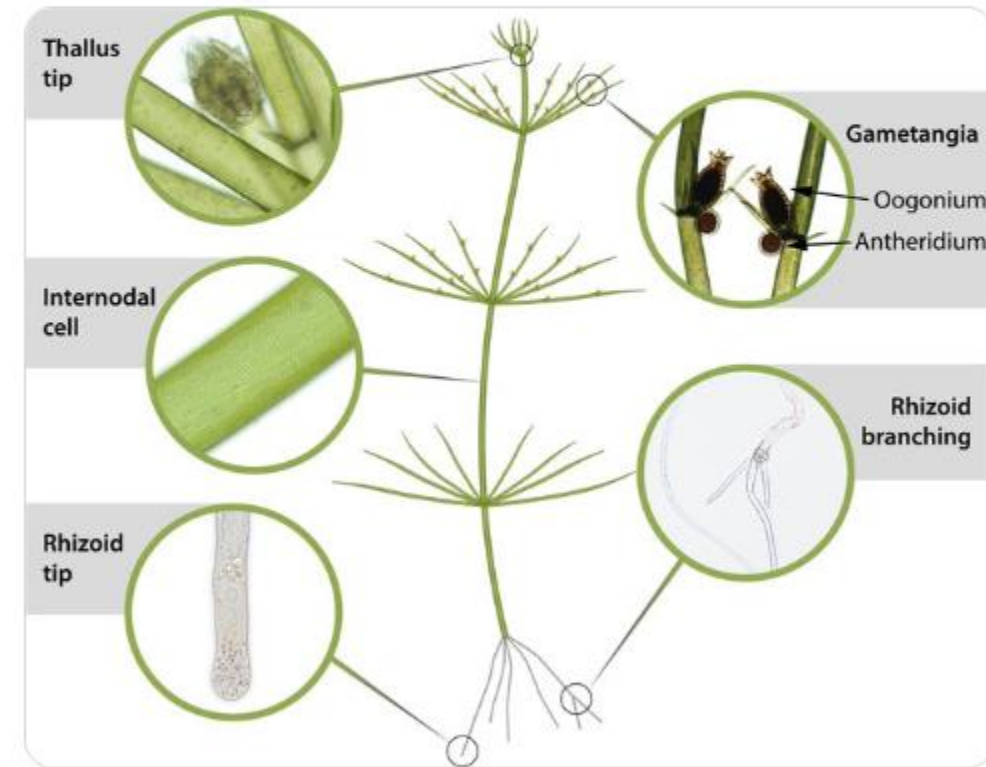
Katarina Kurtovic @kat_kurtovic · Oct 27, 2023

Excited to see our Chara review finally out! We summarize decades-long research and new insights into the molecular biology of this fascinating relative of land plants.

[link.springer.com/article/10.100...](https://link.springer.com/article/10.1007/s00437-023-01888-1)

[1/3]

#Chara #evolution #streptophytes



2

42

117

11K



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Conference networking, social media networks

Social media networks

- can be a great way to share your work on a broader scale
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Katarina Kurtovic @kat_kurtovic · Jul 14

The fast cytoplasmic streaming of #charabraunii is fascinating on its own. But it's even more amazing to look at when something is fluorescently shining 😊. The many nuclei of protonema performing their streaming dance.

#FluorescentFriday



6

26

760



1. Basics of research work

- **Abstract**
- very condensed form of scientific paper containing:
 - **Introduction and Rationale** - why it has been necessary to make an experiment
 - Methods** - briefly, but clearly
 - Results** - only the most important piece of evidence
 - Discussion and conclusion**
- all together not more than 200-300 words

- the example of [poster abstract](#)

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Poster:

- **efficient way of making your results publicly known**
- **it could have long-lasting validity** - hanging at the corridor's wall
- **there are no obligatory rules** - you should attract attention
- **presentation at the conference** - poster sessions, the author should be present at specified time, mini-presentation“ could be organized
- **conclusions are the most important** - in a form „take home message“
- **printed miniature of the poster** – very useful of the propagation
- **preparation using a software** - Corel Draw, Adobe Illustrator or Power Point, pdf or eps for printing

[Better Scientific poster](#), [how to create a better research poster](#)

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Oral contributions at the conference:

- **purpose of the contribution** - presenting author usually speaks also about the work of other colleagues from the team
 - the main purpose is to convince others that presented results are important and that the group of authors is reliable
 - always include the reference to published papers
- **common mistakes** - not balanced proportion of results and general introduction
 - exceeding time limit
 - monotonous presentation
 - low self-criticism or too high criticism to other results
 - problems in graphics (black on white is still the best!)
- **example of the oral contribution at the conference**

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Scientific institutions and organizations, scientific conferences

Scientific organizations/societies

- connect researchers according to their research field
- their significance is often more important for the research team than the interaction with other teams in the same building
- ironically, the membership is often payed from the private money of the researcher
- support of collegiality needed for the evaluation of research grants and papers, organization of conferences, etc.

Examples of the main scientific societies in the field of plant experimental biology:

- [FESPB](#) - Federation of European Societies of Plant Biologist
- [ASPB](#) – American Society of Plant Biologists

