

# 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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## 1.3. Scientific institutions and organizations, scientific conferences

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.

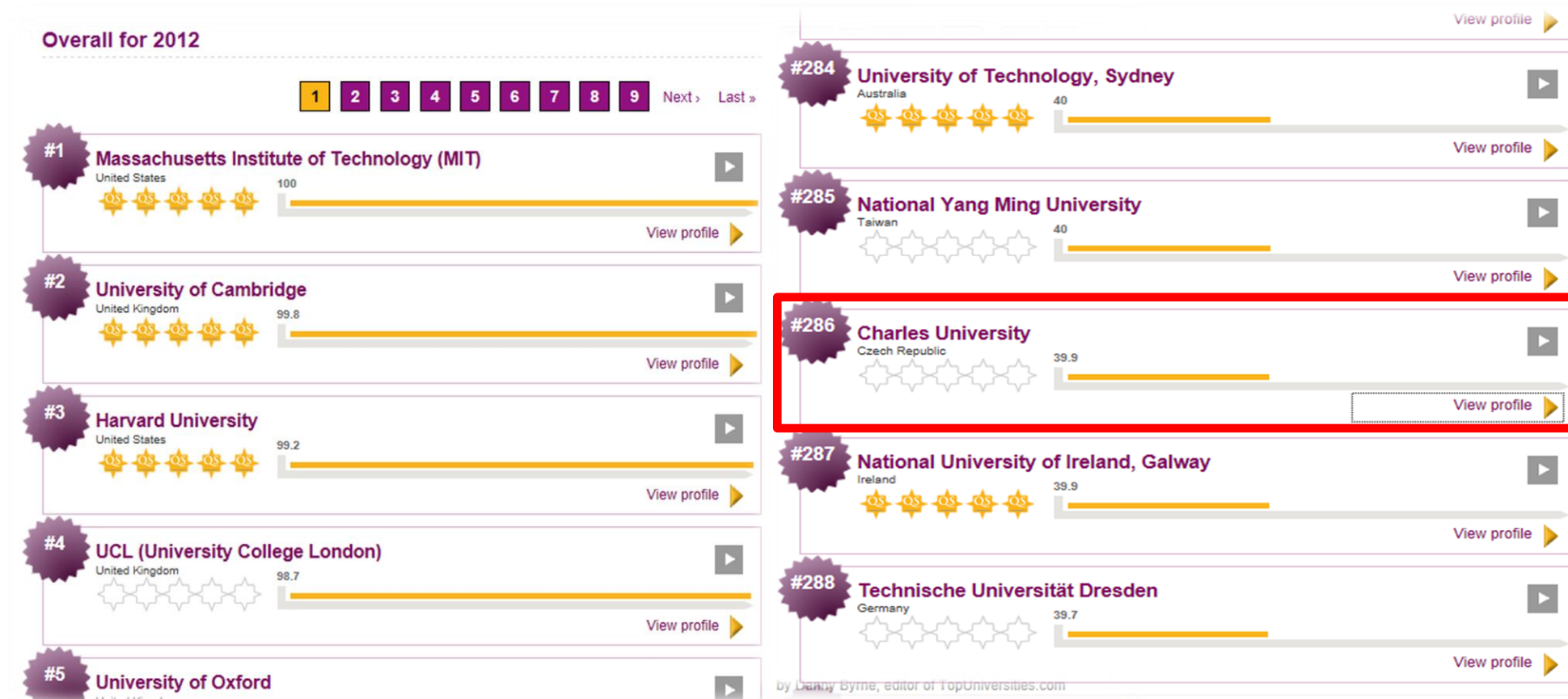
With respect to the quality of the scientific research the best universities are located in the USA and UK

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



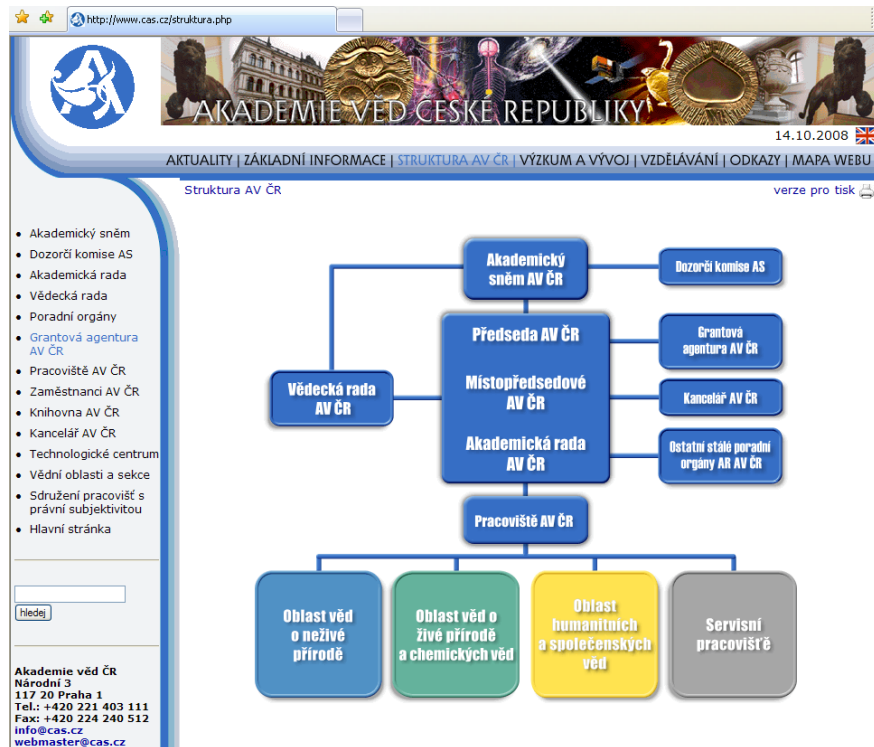
The screenshot shows the Stanford University website. At the top, the Stanford University logo is on the left, and navigation links for 'Maps', 'A-Z Index', and a search bar are on the right. Below this is a horizontal menu with items: 'About Stanford', 'Admission', 'Academics', 'Research' (highlighted with a red box), and 'Life On Campus'. Under the 'Research' menu, there is a 'Show Expanded Menus' link. The main content area features a large banner for 'Founders' celebration' with a photo of the Leland and Jane Stanford statues. To the right of the banner is a 'GATEWAYS FOR...' section with a list of links: 'Students', 'Faculty & Staff', 'Alumni', 'Parents', 'Visitors', and 'Neighbors'. Below that is a 'TOP DESTINATIONS' section with a photo of a campus street. At the bottom, there are sections for 'EVENTS', 'UNIVERSITY NEWS' (with a sub-section for 'Gray Matters' and a 'MORE STORIES' link), and 'SCHOOLS & DEPARTMENTS' with a list of departments: 'Business', 'Earth Sciences', 'Education', 'Engineering', 'Humanities & Sciences', and 'Law'.

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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' logo and a row of social media icons.

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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 represent the main „power” of the team, they are usually in their best age (untill 35 or 40), the most frequently asked temporary positions around the world
- Specialists - experts in certain methods, they do not have their own scientific ambitions
- Ph.D. students - they work on their thesis under the supervision of the leader or some of the postdocs, the thesis must fit into the profile of the team.
- Diploma students - they work on their diploma thesis, topic might be broader
- Younger students (bachelors) - temporary help with the laboratory work, very good for the orientation in the field
- Laboratory technicians - essential for the keeping the lab in good shape. Sometimes the success of crucial experiments depends purely on their skills.

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## How people in science see each other





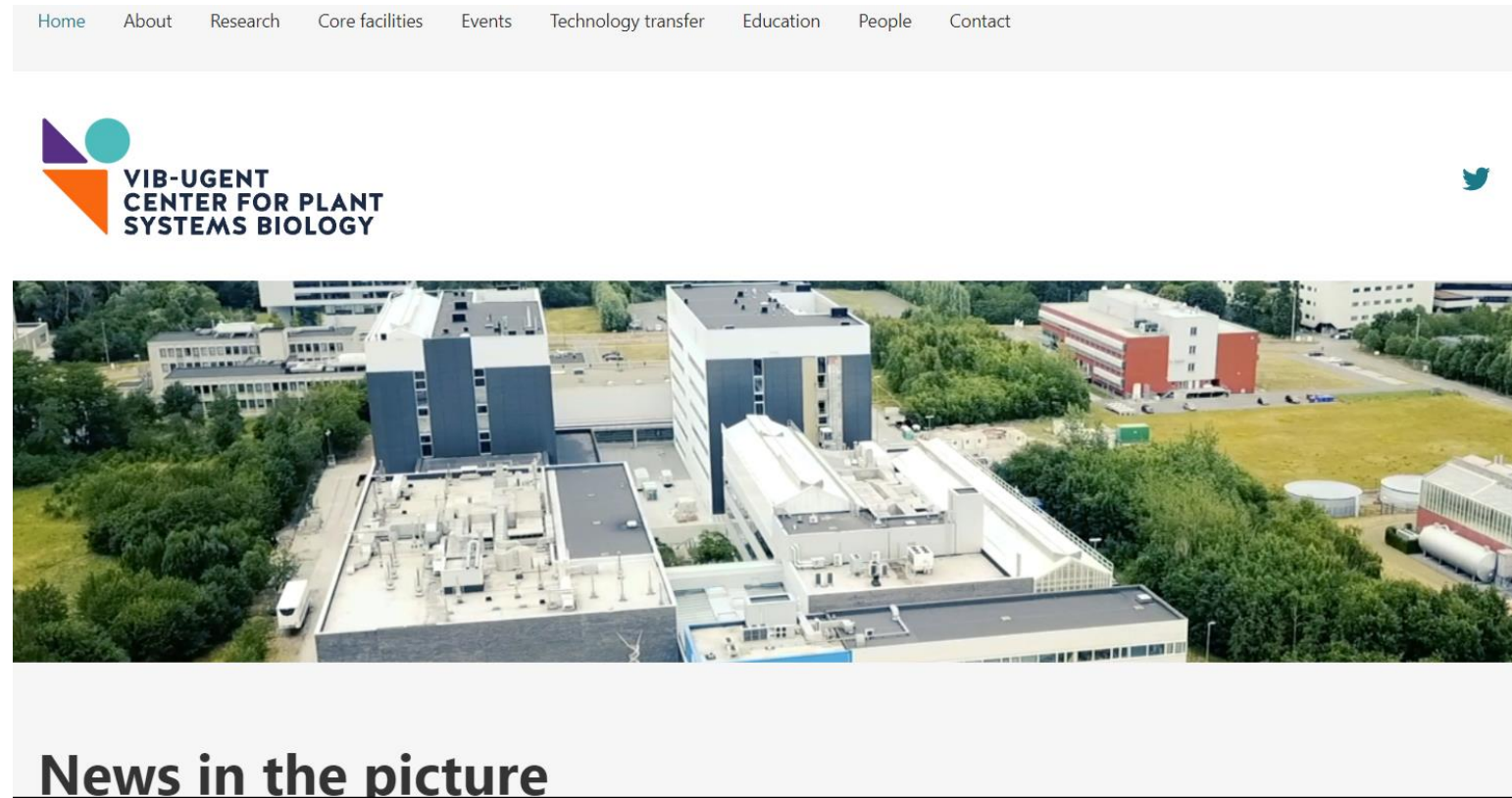
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### What is the structure of „healthy” research team?

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 for the transfer of knowledge



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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 group leader to properly lead and discuss all individual research projects in the group. This could lead to the fatal consequences like scientific frauds, 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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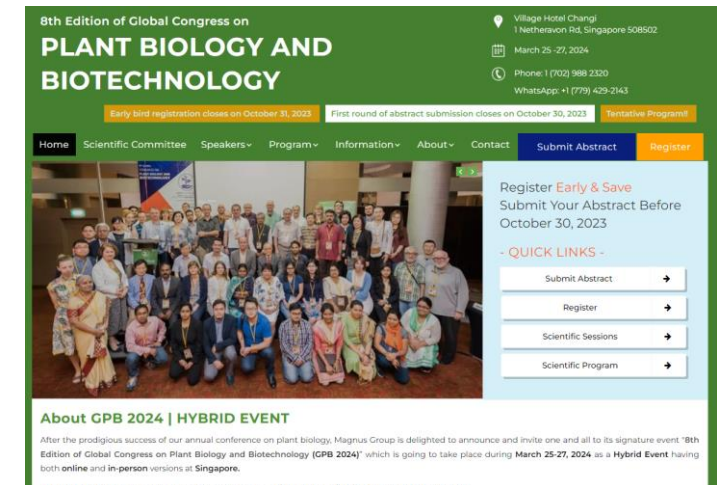
The following paper was submitted to *The Plant Journal*. After peer review and revision it was accepted. Following the discovery of **scientific fraud** in the Department of Genetic Principles of Plant Breeding at the Max Planck Institute for Plant Breeding in Köln, a wide-ranging group of researchers 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 tourims“ 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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## 1.3. Attending a scientific conference as a student

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

**Now what?**



# 1. Basics of research work

## 1.3. 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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## 1.3. 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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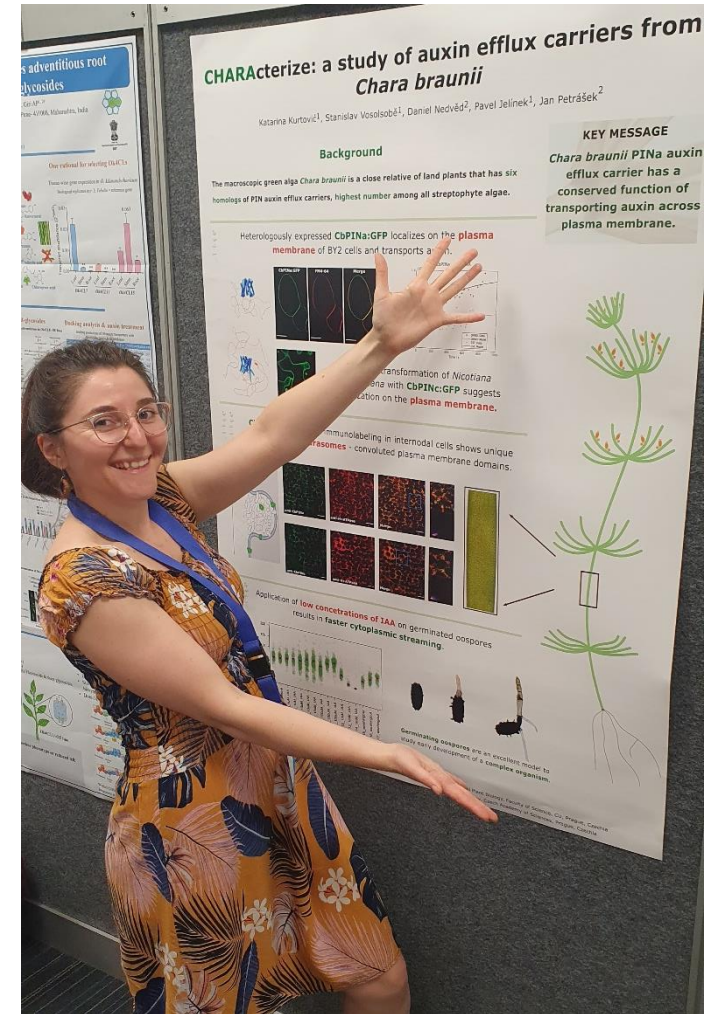
## 1.3. Scientific contributions at the seminars and conferences

### Poster

- Can be made using PowerPoint, InScape, 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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## 1.3. 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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## 1.3. 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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## 1.3. 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>

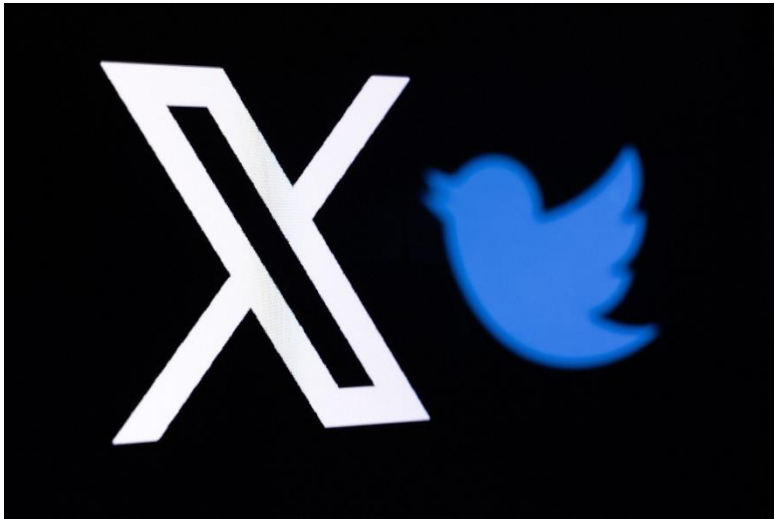
<https://plantae.org/plantaepresents-building-your-professional-scientific-network/>

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## 1.3. Conference networking, social media networks

### Social media networks



LinkedIn

R<sup>G</sup>  
ResearchGate

mastodon

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## 1.3. 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)



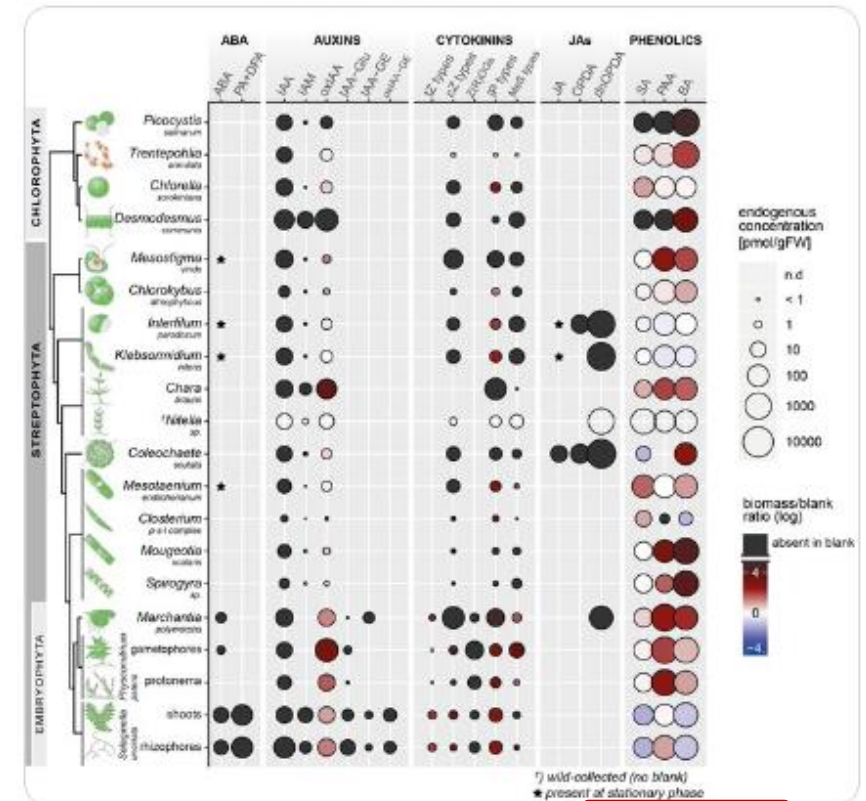
vojtech\_schmidt @SchmidtVojtech · Apr 8

Happy to share our new @bioRxiv pre-print: we provide a comprehensive profile of plant hormones in all streptophyte #algae lineages and some other as outgroups.

Find out more: [biorxiv.org/content/10.1101/2020.04.08.338888](https://www.biorxiv.org/content/10.1101/2020.04.08.338888)

[1/10]:

@PetrasekLab #phytohormones #evolution



4

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134

15.9K



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## 1.3. 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



0:06 6 26 760

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## 1.3. Attending a scientific conference as a student

### Writing an effective abstract for a scientific conference

- most abstracts are between 150 and 300 words long (word limits might be strictly enforced) and written as one paragraph
- The information contained in abstracts is generally as
  - Provides key background and states principal objectives (1-2 sentences)
  - Describes methodology used (2-3 sentences)
  - Summarises the most important results (1-2 sentences)
  - States main conclusions (1-2 sentences)

<https://www.phrasebank.manchester.ac.uk/>

# Scientific contributions at the conferences and seminars

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- **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](#)



## 5.4. Scientific contributions at the conferences and seminars

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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](#)

## 5.4. Scientific contributions at the conferences and seminars

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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**

# 1. Basics of research work

## 1.3. 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

