

Ask questions like a Pro:

Questions you can ask at any scientific seminar:

Scientific seminars follow ancient routines. The speaker speaks for his allocated time plus a generous 15% bonus and then the big-shots in the first row ask a few questions. But have you ever noticed that they always ask the same questions? It's called experience, i.e., they made up their question some 20 years ago. Time for you to get up to speed and participate with your own highly original questions! Don't have an idea what to ask? Just select one of the generic categories offered below, and pay attention for some 5 minutes before napping off. Try different questions until you find the one that suits you best! Before you know you will sit in the first row, a proud member of the establishment!

Here are the questions you can ask:

(1) Random questions. Just pick a detail and ask a question!

(This is the safest bet if you plan to fall asleep ... chances are he didn't explain that particular detail while you were dreaming.)

(1a) Ask about a random graph:

On slide 15, right graph, why is the third data point below the mean?

What does the red line in Figure 12 signify?

(1b) Ask about a random equation:

What is the physical meaning of coefficient x in equation y ?

How did you obtain the second equation on slide 8?

(1c) Ask about a random image:

Which part of the setup is the spectrometer?

What is the size of the chamber?

(2) Systematic questions: There is stuff he didn't tell you, so you should ask!

(Those questions can be so generic that you don't have to reinvent them for each talk.)

(2a) Ask about the relevance of the research:

What is the relevance of your research to the larger community?

Your introduction mentioned the National Ignition Facility. What is the impact on the NIF?

(2b) Question the scientific method:

Is your experimental data sufficient to prove your claim of nonadiabatic dynamics?

Would high-resolution spectroscopy be suited to address this question?

(2c) Question the scientific model:

Is the chosen model sufficient to quantitatively describe the observed behavior?

Is it not better to use a quantum (/ relativistic / analytical) model to treat this issue?

(2d) Ask about statistics:

How did you determine the confidence range of value x ?

Are your results statistically relevant (/ robust / reproducible)?

(3) Relate everything to your own research interest:

(This pulls the speaker onto your home turf, so you can lean back and he has to sweat it.)

Will your work help me to understand ultrafast photochemistry?

Do you plan to perform femtosecond experiments?

Do you think your work will be relevant to the field of molecular biology?

Do those molecules play a role in astrophysics?

(4) Ask about the past

(Nobody knows that ancient pre-1980 printed literature, so your question will put the speaker off balance.)

Where did the model come from?

Did nobody consider the polarizability of helium before?

(5) Ask about the future

(This is the nicest question you can ask. Now the speaker can pull out his bonus slides!)

What do you plan to do next?

Do you plan more work along the line of the helium experiment?

(6) Claim you have seen it all before

(Technically not a question, this approach offers entertainment for the whole room. You have to (pretend to) know your literature though.)

In 1996, Gerard and coworkers already observed ionization suppression. How are your results new?

In my PhD thesis, I showed the equivalence of ZEKE and REMPI spectra. So why do you claim to observe new physics with ZEKE?

Alternative approach:

You could always ask about something you did not understand. You will, of course, feel thoroughly stupid when revealing your ignorance to the whole room. But some would claim that it is better to ask a stupid question once then to carry it around for a lifetime. Indeed, you should try it, because it's better to feel stupid than to be stupid. So go to those seminars and ask your questions -- *because there is no better way to learn!*

Thomas Schultz
Berlin, 11.3.2012

P.S.: The generic questions were developed during a tedious seminar, while pondering the eternal questions of *how to get the students involved*. The original set of 10 questions was circulated and lost, so the questions here are just made up at my desk (admittedly, not the same creative environment). If you come across better examples or other generic questions, please send your email to schultz@mbi-berlin.de.