

Frequently asked questions

for Master 2 interns and new PhD students in the Doctoral School « Astronomy and Astrophysics in Ile-de-France »



Questions

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Q: Who are my contacts in the Doctorale School 127 (ED127)?

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| Director of the Doctoral School | - <i>Jacques Le Bourlot</i> | Manages the Doctoral School and ensures the smooth running of scientific and pedagogical level of the PhD. |
| Administrative coordinator at the Doctoral School | - <i>Jacqueline Plancy</i> | Manages administratively the Doctoral School. |
| University representatives at the Doctoral School | - <i>Florence Durret (P6)</i> - <i>Alain Abergel (P11)</i> - <i>Simona Mei (P7)</i> - <i>Thuillot William (Obs)</i> - <i>Cyril Szopa (UVSQ)</i> | Contact at the Doctoral School for the University. They ensure the smooth running of PhD in their Universities and allow PhD students to administratively register for the following year. |
| Student Representatives at the Doctoral School | - <i>Claire Guépin (IAP)</i> - <i>Victor Marchiori (LESIA)</i> - <i>Pierre Guiot (IAS)</i> - <i>Elena Bellomi (LERMA)</i> - <i>Nicolas Dagonneau (DAp)</i> | PhD students themselves, they participate in the council of the Doctoral School to represent you. They also attend interviews for PhD fellowship provided by the Doctoral School to M2 students. Contact to share any worries. They are important contacts and to compare your experience. |
| Doctoral courses coordinators | - <i>John Carter</i> | Organize the doctoral courses offered by the Doctoral School and validate the doctoral courses that PhD students have to attend during their PhD. |

During a meeting, held in October, you will meet the Director of the Doctoral School as well as the University representatives, the student representatives and the doctoral courses coordinators. However, you can contact them by mail or phone to meet them throughout the year.

Q: I already did an internship, what are the differences with a PhD?

Most of you already did an internship in a research lab, most often for about 3 months or so. You probably have some idea of how a lab works and of the scientific activity of a group, but to know how the PhD will work out and how research in general works is much less obvious. The internship concerned a specific topic, such that the tools were more or less ready to use, such that all concepts were already well defined, and such that the result was more or less anticipated.

The PhD, although it is also accompanied with an abstract that can appear somewhat specific, includes several major differences with the internship. Obviously, **the PhD is a much longer work than an internship**, and it is important to be well organized to keep in mind the goals to achieve. Moreover, and although the concepts are already present in the PhD topic, the objectives often have to be redefined, or the data sometimes have to be interpreted in a completely different way than anticipated at first. The results just cannot be always anticipated, otherwise there would be no need to a PhD! A PhD is therefore an **evolutionary process** and it is not uncommon that the final abstract/titles differ sometimes significantly from the initial text. These changes are often proposed by your advisor directly, or between you, your advisor, and possibly your group, or because you took the initiative yourself, in agreement with your advisor. At some point during the PhD, **you will actually be the expert in your topic**, and you will be the best possible person to take some decisions, which was not necessarily the case during previous internships. In practice, some interpretative tools do not exist yet when one starts a PhD, and you will likely have to develop some from scratch.

The internship is halfway between a student work and a research work. Nevertheless, **your work is truly that of a full researcher**, and nothing will differentiate you from permanent researchers, apart from your experience. PhDs deal with leading edge research, and you will be the first one to find the results and answers, even before your advisor.

In the beginning of your PhD, you will slowly discover what really makes a PhD work, and you may be either happy or worried about it. In any case, **you need to share any worries as soon as possible with the other PhD candidates, with the post-doctorates, and with the researchers in the department**. For instance, you should not hesitate in asking questions on the inner workings of research in general, at the level of your laboratory, but also at the national and international levels.

Q: What is expected from me? What are my responsibilities?

You accepted to do a PhD in a host laboratory. Obtaining doctoral fellowships is not an easy thing, so your first responsibility is to honor your contract to the best of your ability. Some PhD topics were attributed through a special funding (CIFRE, CFR...) for which your PhD advisor, the lab, and the doctoral school have invested both time and effort. These fellowships are attributed to few students, implying some responsibility once you have accepted the contract. **In any case, a fellowship was awarded to you because you deserve it.** Your contract can be fulfilled, with or without any adjustment, if you often discuss with your PhD advisor, and, if need be, with the various contacts and representatives (see page 3). Below and through this document, you may find an echo of some of your worries, and you will also find the reasons to be reassured.

It should be reminded that the PhD is a full-time professional activity, with a 3-year contract, including all the related responsibilities. Hardware will be made available to you, by the lab, for which you will also be responsible.

Being supervised

During the first few months, in some cases, it happens that the way you are being supervised can appear as too rigid. This should be seen as a way to start the PhD in good conditions, and also to allow the advisor to adapt step by step his/her interactions with you.

The supervision will evolve – more or less rapidly – toward a true and synergetic collaboration between you, your advisor, and your group members. You will slowly become the expert in your topic, and you will be able to take initiatives and become independent. However, on the long term and depending on your advisor, the way you are being supervised may appear too rigorous, or on the contrary too flexible. In any case, you need to speak to your advisor first, and possibly to your group members, and to the various contacts in your lab.

Whatever way you are being supervised, what is expected from you is **to succeed in your PhD**. There are many ways to achieve this, but you should always remember the final goal.

Communication

Apart from the pure research work, it is important that you share your results. It is expected that you communicate with your group (for instance during group meetings), with the people in the lab (for instance during seminars), and with the astronomical community in general (for instance during conferences or through publications). One could also add outreach to the communication skills, although this is more of a personal choice. **Scientific communication is an essential component of research.** You should not be afraid of this, because one learns how to communicate well, even though sometimes very slowly. To make things clear and to reassure you, you are not being asked to communicate like a commercial representative! You “simply” need to learn how to speak in public, sufficiently well for your ideas to be understood. **To communicate well enough for this can take several years, no need to worry too much about it.**

Communications are sometimes in French (group meetings, corridor discussions, national meetings...),

and often in English (refereed publications, conferences...). It is not expected that you speak English fluently, neither at the PhD start nor at the end. However, you need to improve enough to reach an intermediary level that will allow you to speak and be understood. The first publication and the first oral presentation in English are sometimes difficult, but you are helped by your colleagues in both cases. English classes are proposed for those of you who prefer a school-like learning method rather than an on-the-go method.

Travels and external collaborations

For some PhD topics, you may be asked to travel for work, in France or outside, sometimes for several weeks/months. You may also have another advisor, once again either in France or outside. In all cases, travels can produce quite different experiences, depending on your personality and on the conditions of the travel (length, place, working environment...). While leaving for a conference once or twice in the year for a week each time is not very constraining, leaving for a lengthy collaboration/observation run can become difficult. During your first meetings with your advisor, you probably already defined, together, the general schedule for your PhD, with long trips already anticipated. **The PhD can always be re-structured and re-scheduled, and even though things are already moving, you should not hesitate in sharing your concerns** with your advisor and the various contacts in the lab.

Q: Help, my PhD topic doesn't suit me!

The PhD topic has been proposed to you, with some guidelines (more or less theory, modeling, simulation, observation, instrumentation...). During your first meetings with your advisor, it is expected that you agreed with these guidelines, or that your advisor already proposed some modifications depending on your experience and interests (provided the topic is flexible enough). **Your advisor, the group in which you are working, and more generally the lab, all assume that the initial guidelines are ok with you.**

Broadening your horizon during your PhD

With all of the above said, while your PhD progresses, you may realize that your interests have evolved. **It is normal to have only a rough idea of what research means to you and what kind of research will suit you on the long term.** Some researchers change specialties during their career, and this is quite normal. To change specialties *during* the PhD is a much more delicate matter, because there is a working plan defined over 3 years, and re-orienting the PhD can make it weaker and/or lead to significant delays. Rather than reorienting the PhD, you should keep in mind that it may be **useful to slowly build on contacts or on collaborators in your lab or in other labs**, allowing you to discover other specialties in astronomy. Moreover, if you are interested in teaching, you can do teaching doctoral missions (or “monitorat”)¹ during your PhD (for instance to apply to “Maître de Conférences” positions). Finally, it should be reminded that a post-doctorate, if you consider doing one, is a great way to probe a somewhat different specialty after the PhD.

Reorienting

In some cases, if the PhD topic is sufficiently flexible and depending on your responsibilities, it is possible to reorient. In all cases, **you need to always speak openly with your advisor**, not always focus on science itself but take advantage to share your worries. For any worry or concern, communicating with your fellow PhD candidates and then with the various contacts in your lab is essential, always contributing to improve the situation for the best. In particular, your various contacts will advise you based on their own experience in supervising and interacting with PhD candidates over the years. Don't wait until it's too late!

¹ Beware, if you would like to teach during the first year of your PhD, you need to apply to the “monitorats” before the end of the academic year for next!

Q: Why (and how) participate to the laboratory life?

Whether this is the administrative personnel, the direction, the researchers, engineers, or students, everybody participates in making your host laboratory a good place to work. During your PhD, you will spend 3 years with these people every day and you can contribute to help everybody and you in particular, work in good conditions, in a friendly environment.

Social life

The onboarding days or the PhD student days in our laboratory will allow you to know better your working environment. You will then have many occasions to share your experience and discuss during the breakfasts or coffee breaks with PhD students or with lab people and during annual events. Lunches are also a great occasion to share and discuss (for instance with other PhDs) – your group members will not complain if you don't accompany them every day!

Seminars and conferences

Apart from the social life in the lab, it is important to also participate in its intellectual life. An excellent way of thriving socially but also intellectually is to attend the seminars (lab seminars, post-doc seminars, PhD student seminars...), conferences, group meetings, and of course PhD defenses. Your PhD topic being quite specific, you may find it difficult to step back and contemplate your work, especially during the first year. Yet, some of the motivations for your research may also appear, more or less directly, in the research of other people. It is important to be aware of the various points of view to establish yours. You will also discover many other fields in astronomy, and despite their apparent lack of connection to your topic, you may want to explore such different research fields for your future interests! Furthermore, what a pity it would be to reach the end of the PhD and realize that you have – quite paradoxically – only a relatively small and narrow view of astrophysics. Seminars are the perfect occasion to broaden your knowledge. Having a strong astrophysical background is not only a way to appear smart around the table at a restaurant, it allows you to acquire enough knowledge that you can use at your advantage during post-doc or permanent job interviews. It is a quite remarkable skill to be able to grasp the major recent advances in astrophysics, and to anticipate what modern astrophysics will (or should) concentrate on.

Finally, you need not worry if you do not understand the talks in seminars or conferences. In the beginning of the PhD, one often understands only the general introduction, that is, the first 2-3 slides. Only after some time, during and well after the PhD, building on many such presentations, will you be able to understand talks on different topics than yours. If you completely gave up understanding a given talk, remember that you can still take the occasion to find some ideas on how the slides are presented, how the presenter talks. For your future talks, you will quickly learn the things to do... and not to do!

Q: Did I make the right choice?

It is quite normal to reflect on yourself and your work during the PhD, and normal to take a new look, reconsider what is being or has been done. This is mostly the case at the beginning of the PhD (“Am I really meant to do this?”) and at the end (“Should I continue?”). You should not regard these questions as a problem or a discontent, but rather **as a useful (and necessary) questioning**. Some time may be spent before you realize that your topic actually interests you, because the work is difficult at first or because you do not understand enough the broad picture. At first one is often entangled in technical details that prevent us from grasping the global motivations and the importance of the topic.

Not questioning implies that you pursue with the same initial motivations, the same tools, the same way of working, all of which can inhibit your intellectual thriving while narrowing down your scientific horizon. It is therefore normal to adapt from time to time after such questioning. Uncertainties and worries that can spring during the PhD are not always easy to explain to someone outside the academic circle. For this reason, **you should rapidly become used to compare your experience with others, and seek as many advices as possible**, even in cases when this is “only” to be reassured as opposed to solving an important matter.

In any case, after your PhD, you have acquired many skills, and while always questioning your work and yourself, remember that all these skills can become assets in your future (see next question).

Q: How to anticipate the after PhD?

Each PhD candidate has some idea, more or less precise, of what the after PhD will be like (pursuing in research, scientific communication, teaching, private sector...). Toward the end of the PhD, the question should be asked. This is delicate, because one goes from a stable state of mind (studies, doctorate, 3-year project) to an unstable one in which your ideas can completely change along with your future. At the end of the PhD, **you have acquired numerous skills that you should not underestimate**. Among other things: work in a group, manage a project, deal with several projects simultaneously with time and resource management, supervise someone (e.g., interns, starting PhDs...), take initiatives, be independent and original, communicate in public, communicate in different languages, work within international collaborations... All these skills must be accounted for when you think of your future and of what the PhD brought to you.

If you wish to pursue in research, you will most likely go for a post-doctorate, often abroad (although a non-negligible fraction of PhDs stays in France for a post-doctorate).

Post-doctorate positions are quite beneficial. Among other things, they allow stepping back and reflecting on one's PhD research, learning how to collaborate remotely, juggling with various projects, learning another way of working or seeing things, and acquiring some independence. It should be noted that a post-doctorate abroad provides useful skills not only for the academic world but also for the private sector. Although going for a post-doctorate position can be difficult because of the moving and of the new environment, all the positive experience that comes with it should be considered.

Calendar

The following calendar is informative and should allow you to anticipate the few events that will mark your PhD.

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| First year | October | <ul style="list-style-type: none">• Meeting for the new PhD students with the officials of the Doctoral School and the student representatives |
| | November | <ul style="list-style-type: none">• Elbereth conference / Rencontres jeunes physicien(ne)s. |
| | April-July | <ul style="list-style-type: none">• Annual meeting with follow-up committee or with PhD mentor |
| Second year | November | <ul style="list-style-type: none">• Elbereth conference / Rencontres jeunes physicien(ne)s. |
| | February | <ul style="list-style-type: none">• Mid-thesis meeting with Doctoral School |
| Third year | November | <ul style="list-style-type: none">• Elbereth conference / Rencontres jeunes physicien(ne)s.• First session of post-doctoral fellowships |
| | April | <ul style="list-style-type: none">• Start writing thesis manuscript• Annual meeting with follow-up committee.• Second session of post-doctoral fellowships• Start ATER recruitment campaign |
| | July | <ul style="list-style-type: none">• Thesis manuscript to the rapporteurs |
| | September | <ul style="list-style-type: none">• PhD defensis |

Some useful links (in French)

- Association Unissant les Doctorants et Docteurs en Astrophysique (AUDDAS)

<http://www.auddas.fr/>

- FAQ (générale) sur le doctorat:

<http://cjc.jeunes-chercheurs.org/faq/rubrique.php?r=doctorat>

- Gestion des conflits pendant le doctorat:

<http://cjc.jeunes-chercheurs.org/doctorat-a-la-loupe/fiches/FicheDoctoratALaLoupe-15.pdf>

- Valorisation des compétences:

<http://www.afsp.msh-paris.fr/observatoire/dossiers/doctorat/rapportpoulaindoct2011.pdf>

- Mailing-lists / other:

Astro-jc (young researchers, job posting, summer schools etc...):

<https://sympa.obspm.fr/www/info/astro-jc>

SF2A (summer schools, conferences, information on section 17, CNAP, etc...):

<http://www.sf2a.eu/>

Each « programme national » INSU (PN) has its mailing-list, check with your advisor which ones are relevant to you:

<http://www.insu.cnrs.fr/node/1672>

Adapted from V. Leboutteiller, A. Maury, J. Rodriguez, P. Delbourgo, A. Decourchelle