TALENT Course 6: Theory for exploring nuclear reaction experiments
Information on selection, registration and conduct of research projects

Workload for this course includes time for project preparation, for conduct of the research project, and for its reporting. Candidates must give effort to background study and an initial literature survey during the three-week residential component of the course (nominal workload 30 hours) to research/define their personal research project, the methodology to be used and its aims. The process is outlined below. The output of this preparation activity is a short research plan submitted near the end of the residential course. A further 100 hours full-time equivalent effort on the conduct of the project and reporting is expected, conducted in the candidate's home institution, following the residential course.

Preparing and registering a project

- Talk to the course convenors and lecturers about topics of interest.
- Bear in mind that not all lecturers may be present for the entire course, so plan ahead and not in the last days.
- If/when you have an idea for a project then discuss it and try to identify any particular difficulties.
- The expected project workload is 100 hours full-time equivalent (FTE) effort, including the preparation of the final report, so assess the aims and expectations of the project activity realistically.
- Do some provisional reading/literature gathering during the course and try to identify a small number of key research papers.
- Draft a half-to-one page project outline (stating its aims, the methodology to be used, etc.), plus a small number of key references. A LaTeX template is provided at the web site.
- Finally, agree this project plan with a supervisor by both signing a copy of the final project plan.
- Register your project with the course convenors by means of a copy of the outline proposal before the end of the course, i.e. on or before Friday 19th July 2013.
- Collaborative project work is possible. The role of each researcher must be made clear in the project proposal and agreed with the supervisor before it is registered.

Project report format and deadline

- The final project report will be in the format of a scientific paper.

- Collaborative work and reports (agreed in advance) must include a statement of the distinct contributions made by each researcher.
- The project submission deadline is 30th September 2013.
- Reports should be submitted as a pdf file to the project supervisor(s) (and mails cc'd to talent.school@ganil.fr).
- Grading of the projects will be on an a scale: A, B, C, D, E or failed for Master students and passed/not passed for PhD student participants.

Many will already be familiar with scientific writing. However we offer the following general suggestions for those less practiced and as a reminder of good practice.

Structure of reports

- Abstract: A short, self-contained summary of the report and its most important outcomes.
- Introduction: the rational for the physics study and a brief summary (road-map) of the structure of the report.
- Theoretical models/methods and technical details, parameters, etc. and a critical evaluation of these methods for the problem at hand. Description of the methods used (e.g. quantum mechanical methods and/or algorithms).
- Results (text and graphics) and discussion. Include discussion of any tests carried out to verify/benchmark to results of others or limiting case analytical results.
- Conclusions and perspectives. State your main findings and interpretations. As far as possible, present perspectives for future work. Discuss the pros and cons of the methods used and, if possible, try to identify improvements.
- Appendices: Should be used only if there any extra or overly technical material that detracts from the main message(s) of the report.
- Bibliography (see below).

Referencing

- Referencing is vital. Reference all material (all work of others) that you base your work upon, whether formal scientific articles/reports, informal exchanges (private communications) or specialist books or texts.
- In the case of books it is also usual to state the relevant page numbers where the material is to be found.
- It is suggested that you reference in the *Physical Review style*: see e.g. page 7 at https://publish.aps.org/files/styleguide-pr.pdf or refer to the styles used in published papers in the journal.