

Maplesoft presentation @ SAGEX kickoff meeting

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Who are Maplesoft?

- Main product: computer algebra software, Maple
- Maple came from a project at the University of Waterloo that started in 1980
- Maplesoft started as a company to do shipping of the tapes; took over development in the 1990s
- Maple has very diverse functionality: there are packages for physics, finance, fractals, thermophysical properties of fluids (for engineering), and hundreds of other application areas

Maplesoft's history with European research projects in physics

- Maplesoft was a partner to two ITNs in the area of physics: LHCPHENONET (2011-2014) and HiggsTools (2014-2017)
- We had six ESRs in total; two from LHCPHENONET and four from HiggsTools. Each stayed for a period of three months.
- Maplesoft has received great contributions from these secondments, such as: some initial work on representing Feynman diagrams and computing directly with them; and an implementation of generalized polylogarithmic functions.
- We think the ESRs have also generally had a very good experience; that is certainly what they have told us. It is useful to experience in which subtle and less subtle ways life is different in a commercial company from academia. Sometimes it is possible to connect with people at the Perimeter Institute here in town, and/or to attend public events there.

Concrete lessons learned

- It is important to start early with the planning process for a secondment, in particular because it requires applying for a student visa. These come through reliably, but it can easily take a few months.
- We would recommend contacting us about a secondment a year before the secondment is to take place. That gives everyone lots of time for all the necessary steps. The first step is planning a skype "job interview" where the ESR and Maplesoft can mutually decide whether we are a good fit for each other.
- We have good experiences with taking some of these bureaucratic hurdles in partnership with (the local chapter of) AIESEC. This is an organization that plays a role in applying for the student visa, coordinates housing for the duration we need, and can often help the ESRs with any other local arrangement type things.

New plans

- In the past we have usually run these secondments in a similar way to the

internships we have for students at the local universities, meaning that their day-to-day supervisor will be me (Erik) or someone in my group (the mathematical software development group).

- We will try to take a bit more advantage of the specialized knowledge and understanding of the ESRs this time around by involving Edgardo Chev-Terrab more directly. He is the author of our Physics package, responsible for (symbolic) differential equation solving and special functions, and an editor for Computer Physics Communications (Elsevier).