DIANA/HEP Project Activities

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About me

- **Cincinnati member, together with Mike**
- **Probably different from others since 50% DIANA and 50% LHCb**
- **Trained as physics PhD**

- **Followed a few workshops on computing for HEP and ML since joining in Feb.**
  - Have a feeling for what tools the community wants/ thinks it wants

- **Interest in expanding the toolkit of physicists beyond simply**
  ROOT, TMVA, Python and not much more
- **So Pandas & NumPy suite, scikit-learn, rootpy, Jupyter notebooks, etc.**

- **Work on Ostap (LHCb project at the origin) and scikit-hep projects …**

Projects – Ostap

- **Ostap project is Vanya Belyaev's baby. Started ~ 2009**

- **Had been up to now directly coupled to Gaudi and LHCb software**

- **Mainly Python code but contains also C++ classes for core part (e.g. for speed)**

- **It expands ROOT "decorating" many objects and expanding functionality**
  - See Vanya's presentation at a recent topical meeting

- **I suggested to Vanya in Summer to "port Ostap out", to make it a project only dependent on ROOT (and other general scientific software such as GSL)**

- **Turns out the idea had already started. But real move only recently-ish**

- **I contributed in porting out the Python code and have been writing the test suite for Ostap + refactoring Ostap**
  - This is almost done

- **Idea is to integrate Ostap in much bigger and potentially high-impact project … … scikit-hep …**

Projects – scikit-hep

- **Ostap has complementary goals to those of rootpy**

- **During topical meeting with Ostap and rootpy presentations, idea asked whether a merge would be the way forward**

- **The scikit-hep project started end of October**

- **For now focus on bringing together Ostap, rootpy and root_numpy to prepare a core toolkit for HEP allowing an easy use of and bridge between the ROOT and the scientific "SciPy" projects**

- **Collaborating with Vanya (Ostap), Noel (rootpy), Jim and David Lange**

- **Really want to attract other projects/ideas to scikit-hep in a similar(?) to what astropy is doing**
  - Examples are hep_ml and Hydra (presented by Augusto at a topical meeting)

Miscellaneous

- **Near-term goal fully focused on Ostap and scikit-hep**
  - The latter has potential to be a high-impact project – that's the goal!
- **Presentation on scikit-hep @ DIANA topical meeting Feb 20th**
- **Then plan to engage with LHC experiments, Belle-II and others for feedback and tests and evolution as a community tool**

- **Will also be organising 2-3 topical meetings:**
  - scikit-hep, RooFit, LHCb analysis with Pandas, scikit-learn & co

- **Would welcome more collaboration among DIANA team members**

- **scikit-hep could well do with a DIANA fellow … Scope for a project ;-)**