

Tutorials at the MCnet Summer School 18

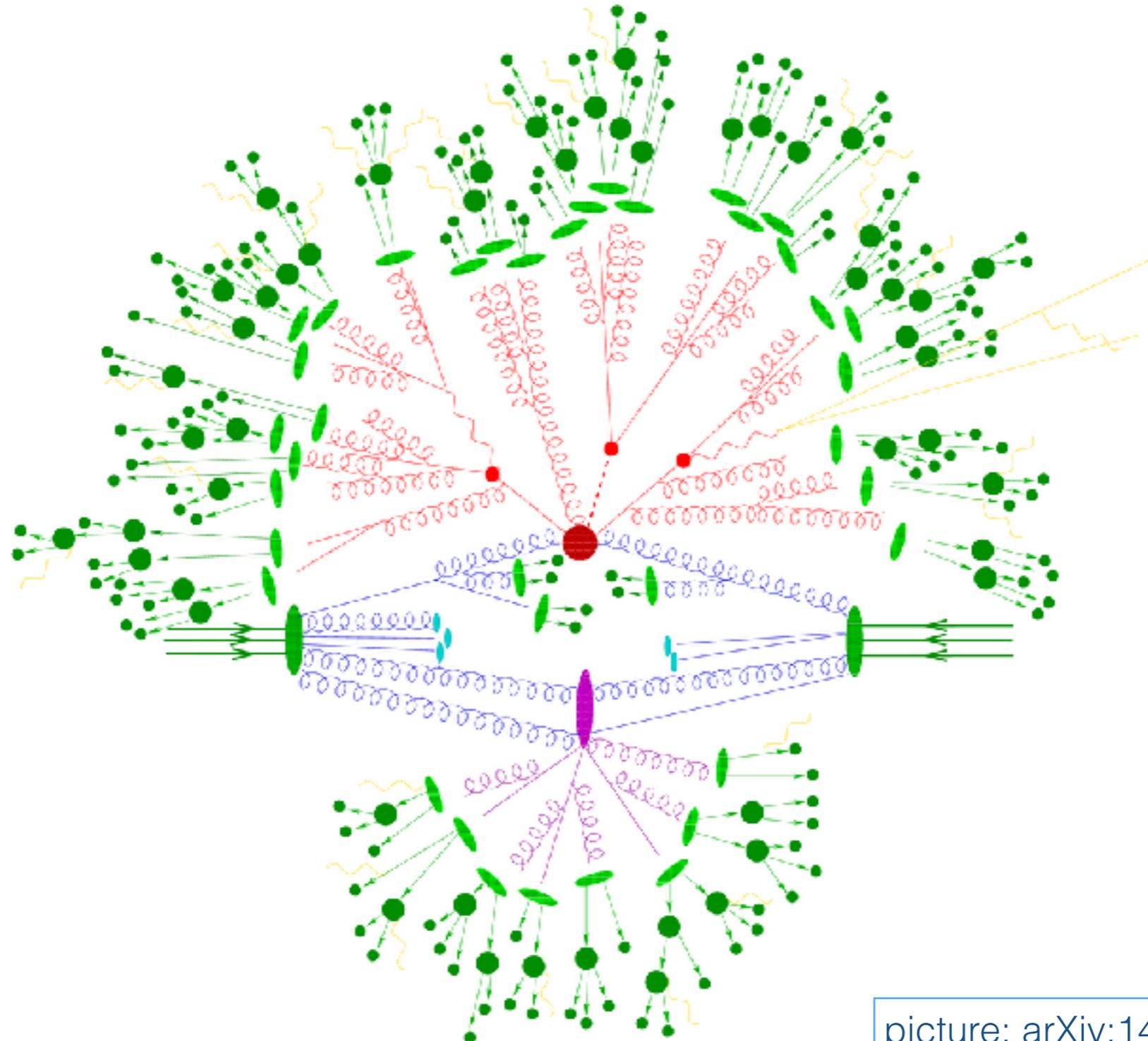


<http://www.slac.stanford.edu/~shoeche/mcnet18/>

1. Motivation
2. What to expect
3. HI tutorials
4. Build your own PS
5. Using MadGraph



Motivation



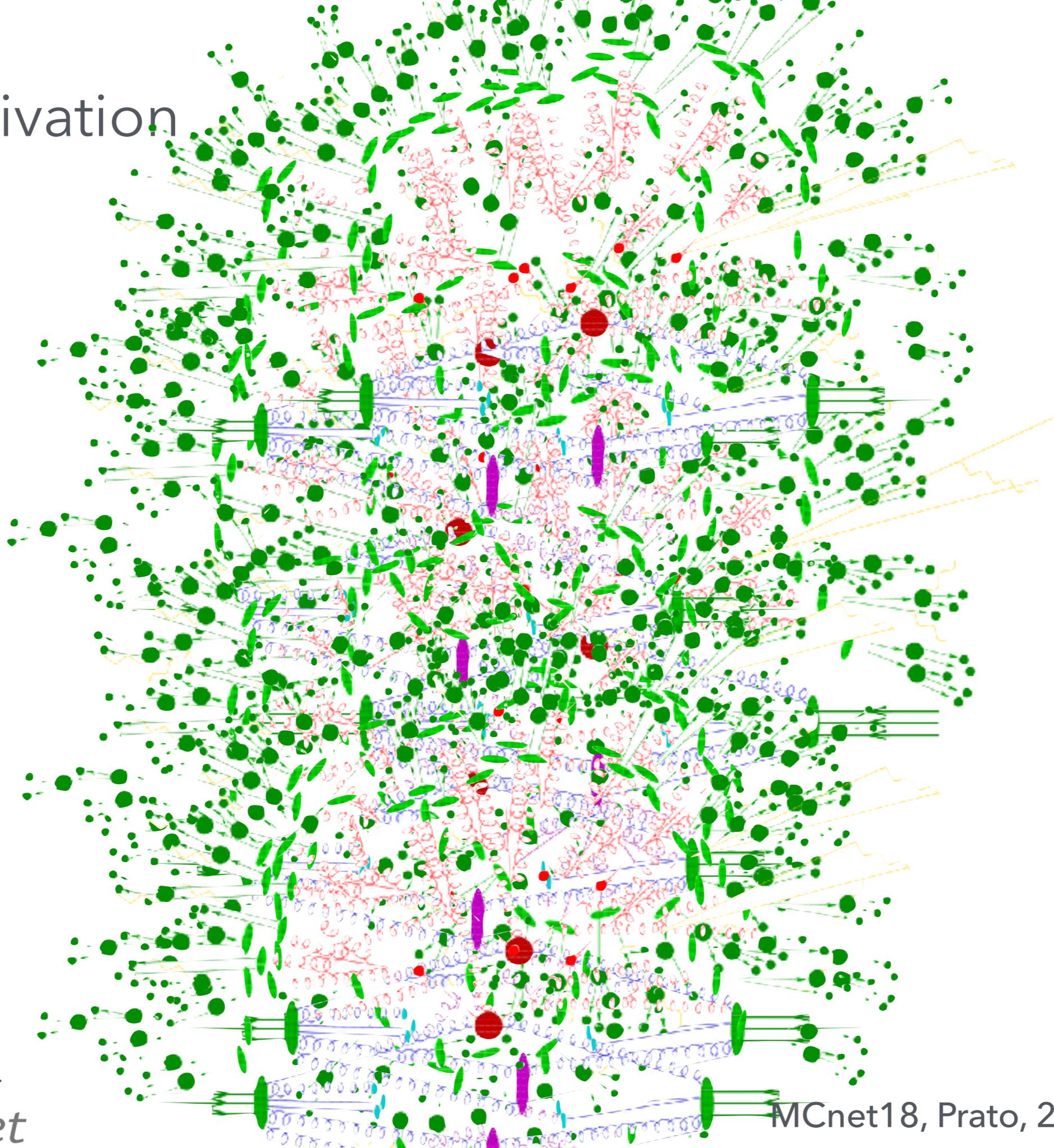
picture: [arXiv:1411.4085](https://arxiv.org/abs/1411.4085)



Motivation

- LHC provides amazing data
- MC generators are used to describe and predict
- In lectures you hear how they work theoretically, here we want to see how the parts implemented actually modify observables
- Recently heavy ion (HI) collisions got more and more attention
- Better prediction and more understanding are achieved
- This year there is even a lecture about HI modeling.

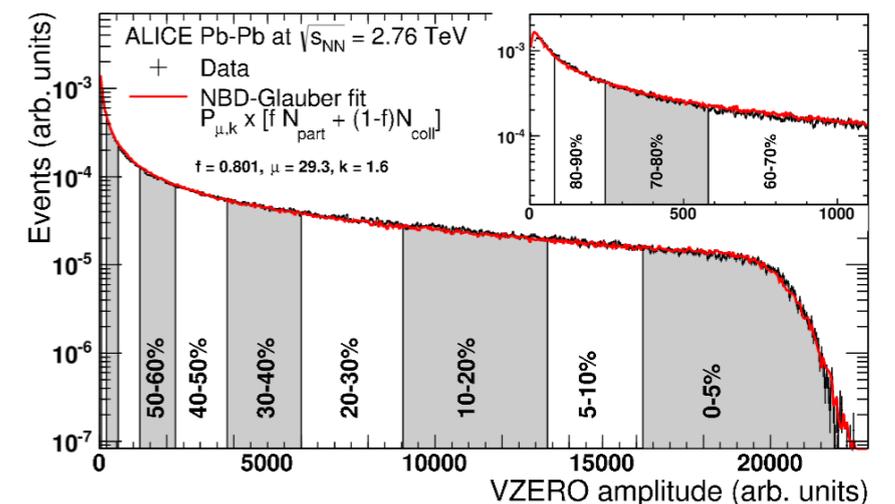
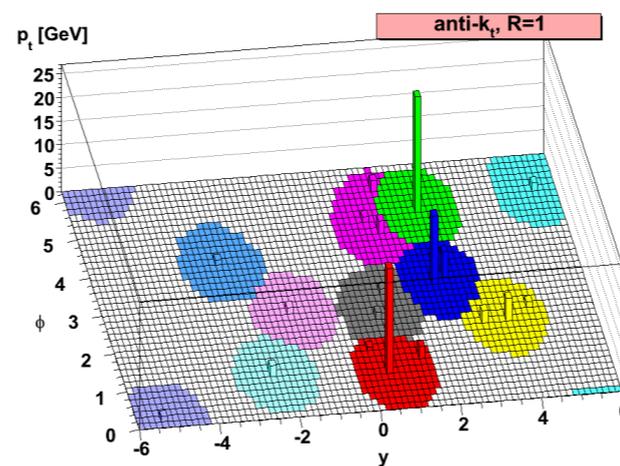
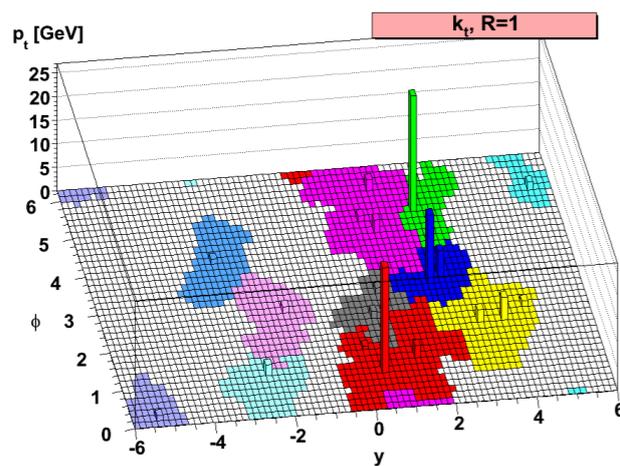
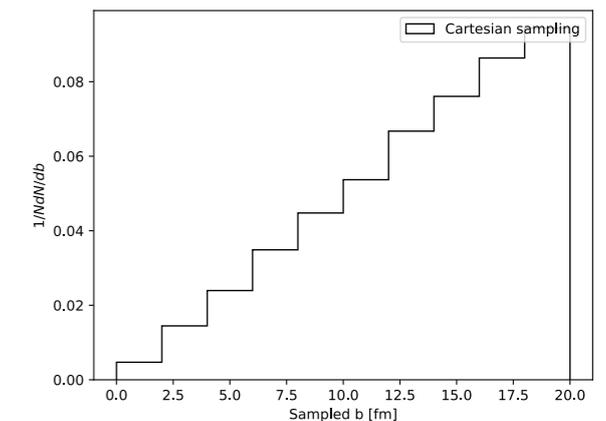
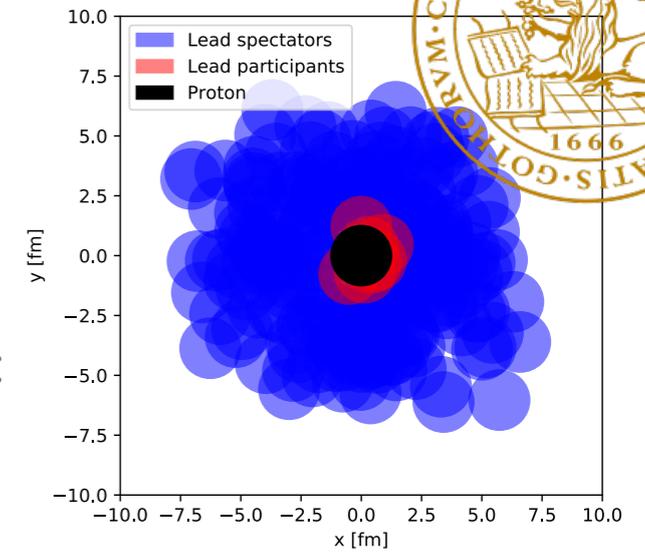
Motivation



Note: Not so many hard processes in heavy ion collisions.

Goals of this tutorials

- We are aware that most of you are not working in the HI modeling or measurement
- So we tried to also discuss stuff that will appear in your day to day life:
 - First steps in event generation.
 - Using Rivet
 - Modify Code!
 - MPI and hadronisation effects.
 - Difference fixed order and PS
 - Jets in general (Shapes, R dependence, different algorithms..)
 - Monte Carlo Methods (importance sampling)
 - Basic understanding how HI can be modeled.





The days of the tutorials

- 1 day: 3 choices:
 - ★ Get to know event generators
(First Events, Modify Rivet, do an analysis in python)
 - ★ Build your own shower
(rebuild a dipole shower in python)
 - ★ MadGraph tutorial
(from the model file to the event)
- 2 day:
 - ★ Basics of Heavy ion modeling
(Glauber models, centrality, sampling ...)
 - ★ Unfinished day 1
- 3 day:
 - ★ Signals in HI
 - ★ Jet shapes

Before we start: `cd tutorials ; svn up` in the virtual box!