Closing remarks

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http://www.ifh.de/~kuhl/WS_fast_detector_group_photo.JPG

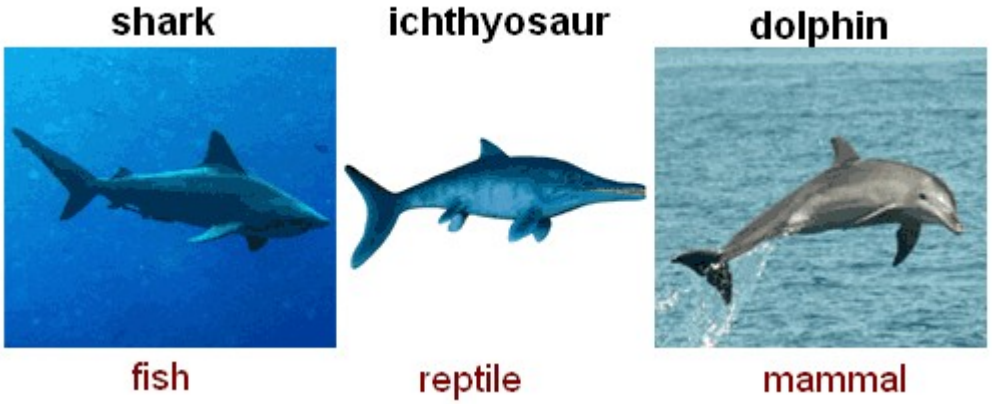
Thanks for a successful workshop

- 28 attendees (goal was ~25), 15 talks, 3 experimental collaborations represented plus the "Delphes collaboration"
- We had lively discussions on any aspect ranging from technical implementation details to the physics implications (even not fastsim-related)
- We mostly went overtime because of the questions, even when the speakers were very disciplined :)
- The formula of an afternoon dedicated to a hands-on tutorial was very nice; to be repeated
- Lesson learned: detector overview on the first day would be useful (not everybody knows CMS by hearth)

What we learned

- I personally learned much more than I expected
- Here follows some random selection of thoughts, prompted by this very workshop
- (I might be slightly provocative)

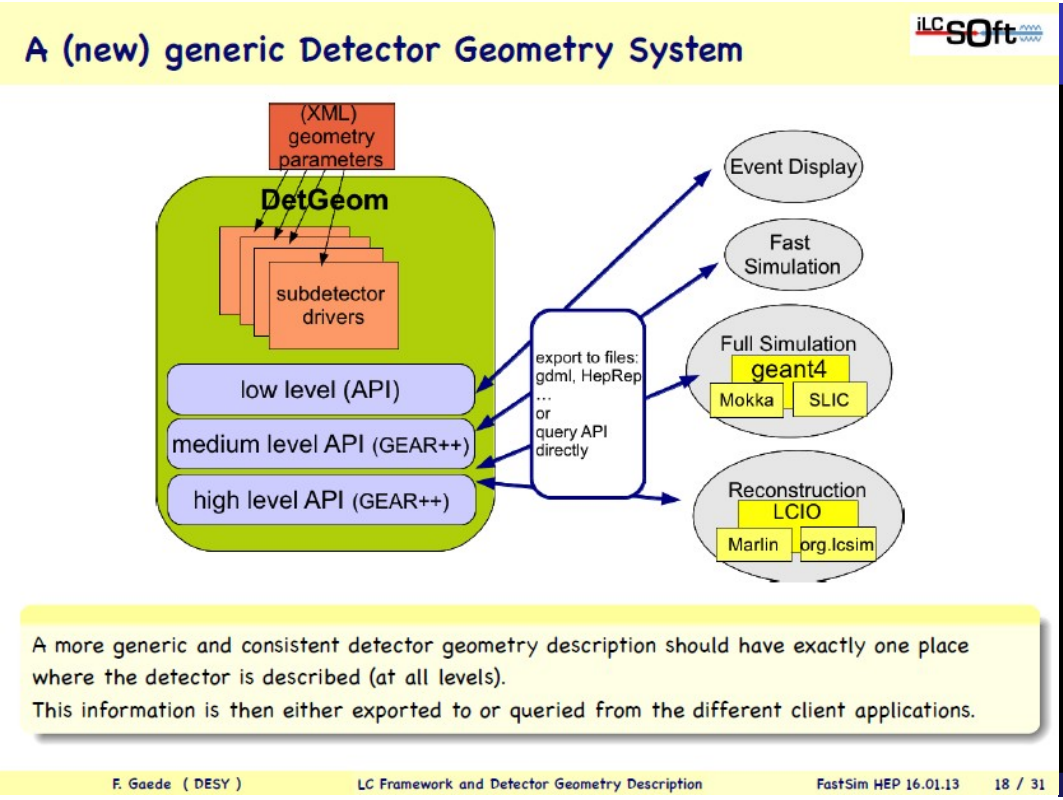
Evolutionary convergence

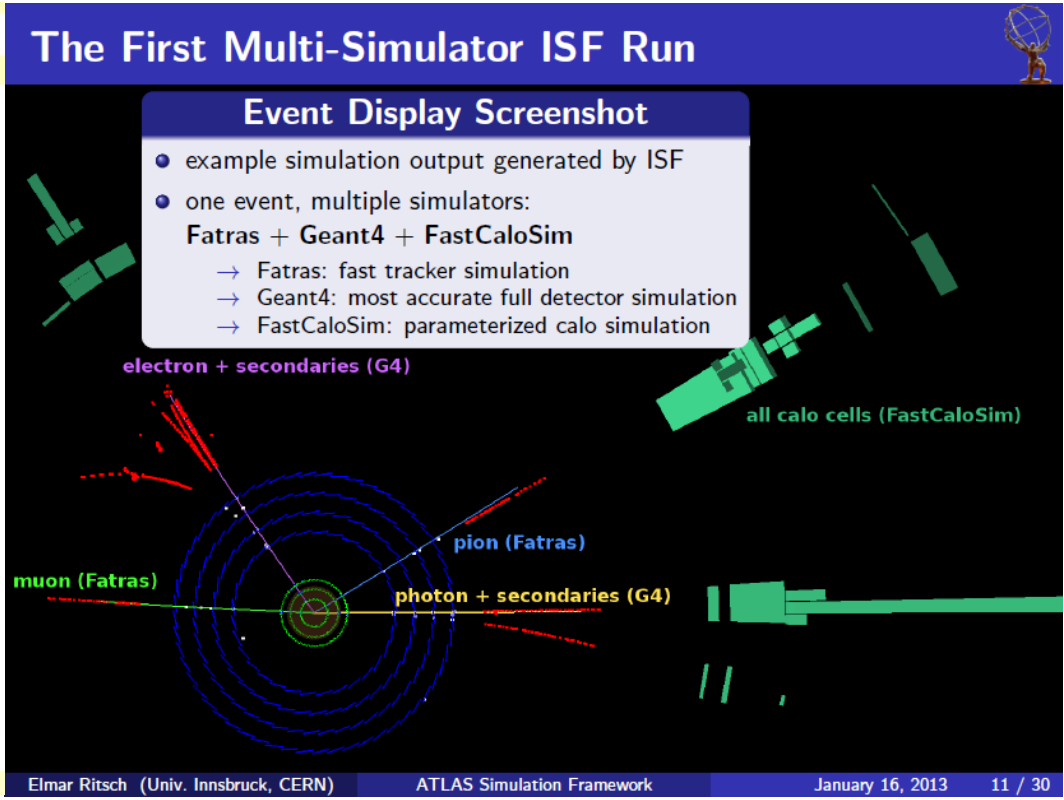


- Similar solutions reached independently by several groups
- So they are probably good solutions :)
- For example, fast tracking simulations in ATLAS and CMS are very similar both in philosophy and in several implementations
  - What about common libraries (à la Geant) for material effects parameterization?

Switches

- Everybody strives for making the switch between FastSim and FullSim as easy as possible
- ISF: easy switch within the same event! The future?



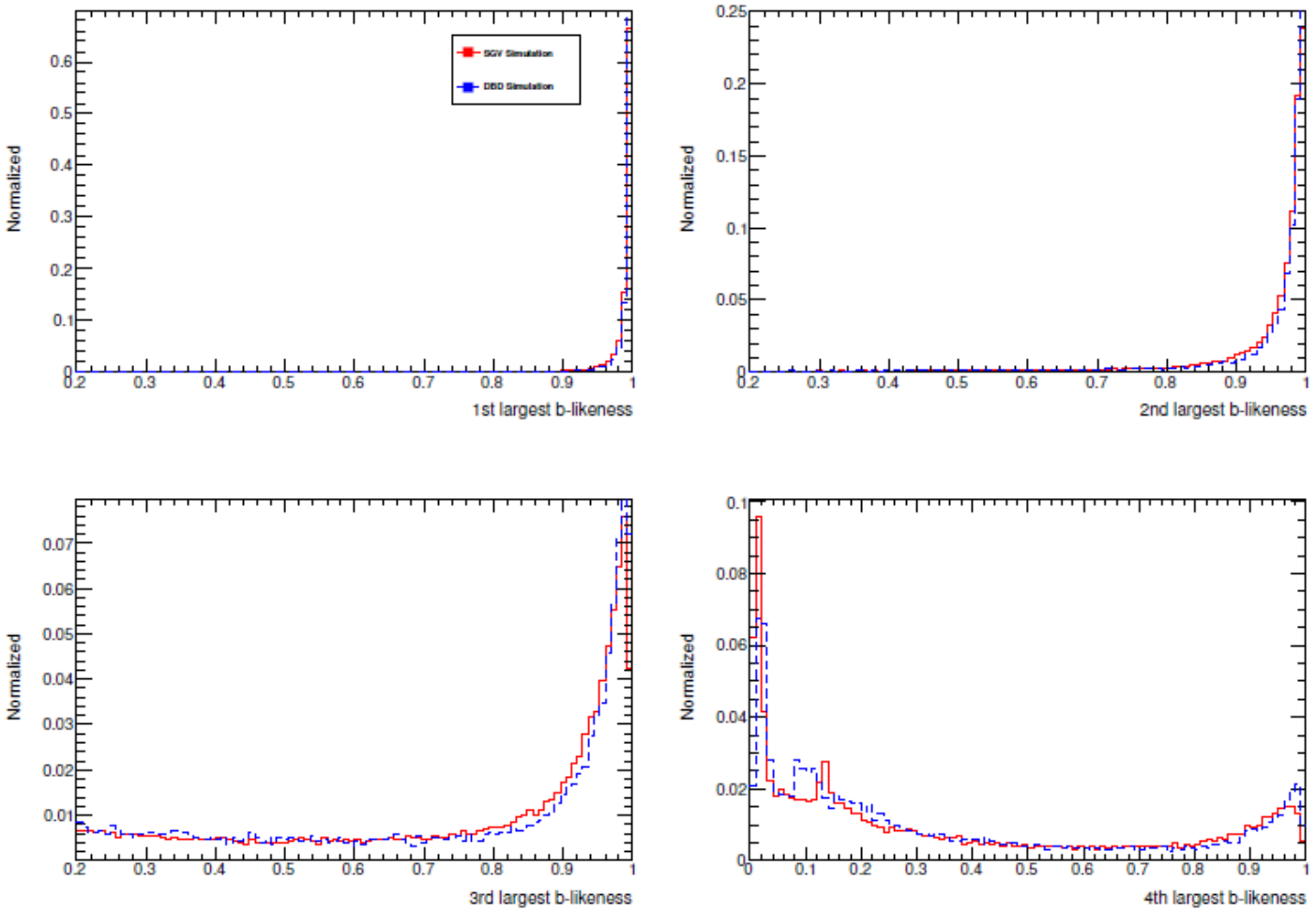


Common tools exist, but you may want to reinvent the wheel anyway

- Delphes is a very popular tool among theorists nowadays (>100 citations; endorsed by LPCC); but use in experimental collaborations (even for future detectors, or upgrades) is limited by preference for a coherent output format between all simulation tools, even if this means reinventing the wheel several times
- But usage of Delphes simulation engine as an external library is possible

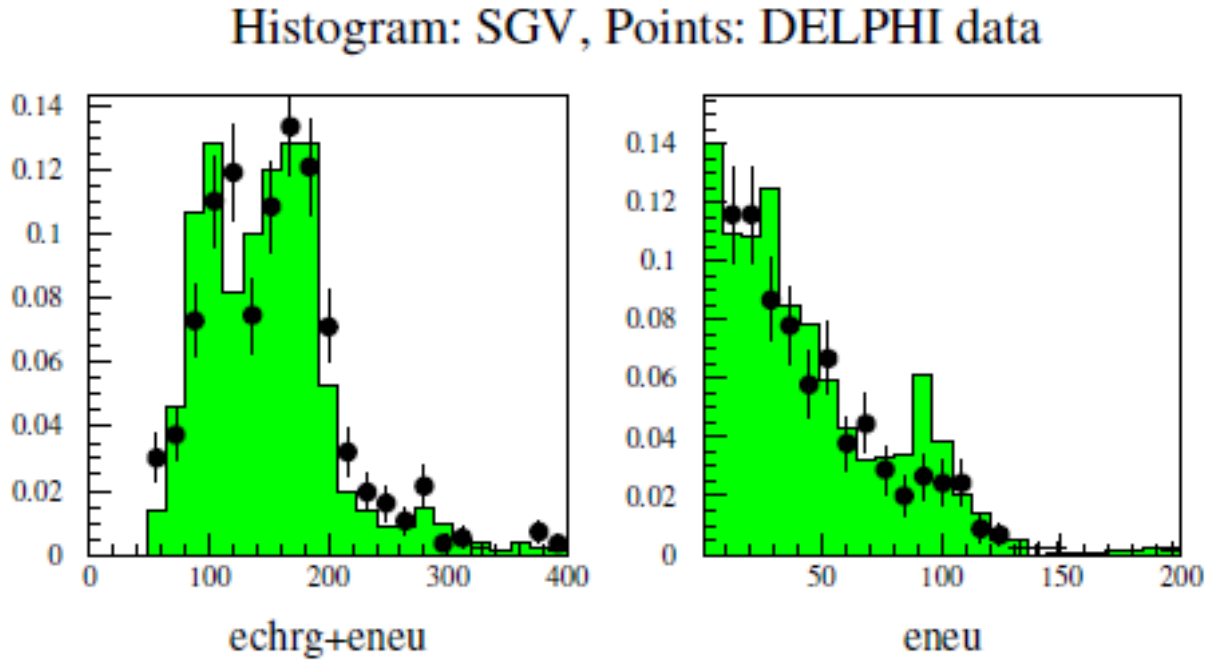
Simple track simulations

- Tracks from very simplified simulations can be a more than decent input to standard b-tagging algorithms



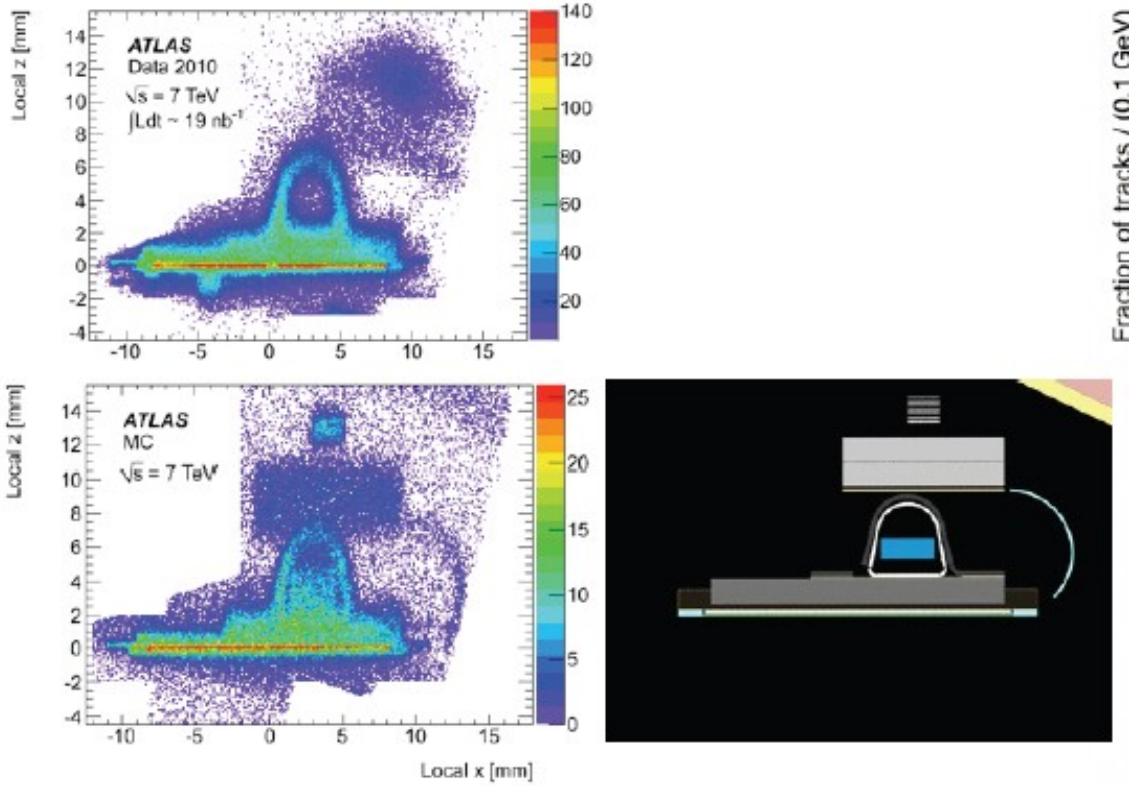
Future experiments already have data

- Simulators for future experiments (hence no data): usually we validate with Geant4 or test beams, but we often forget that we have plenty of collision data from past experiments

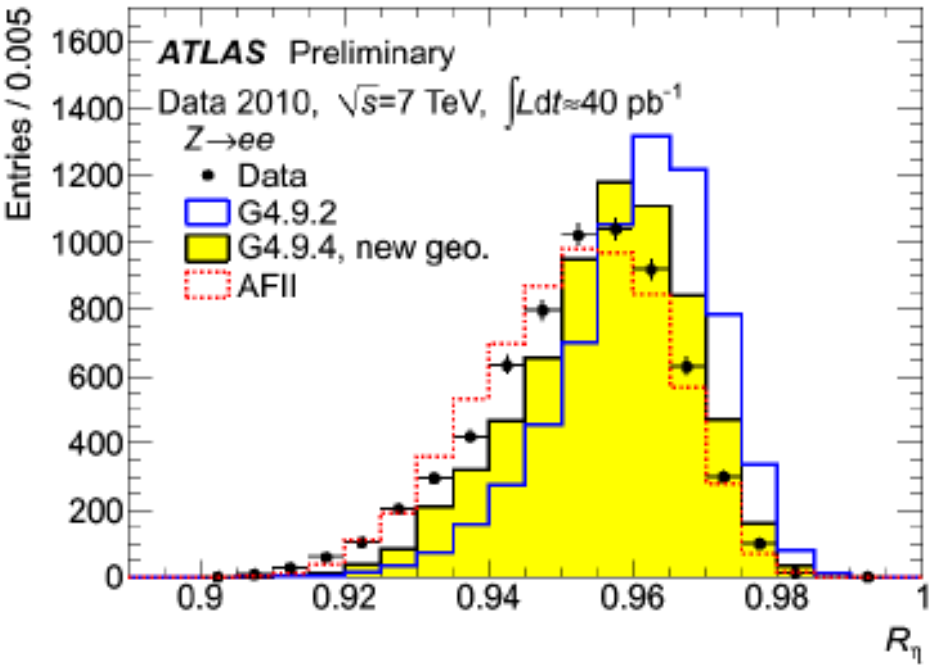


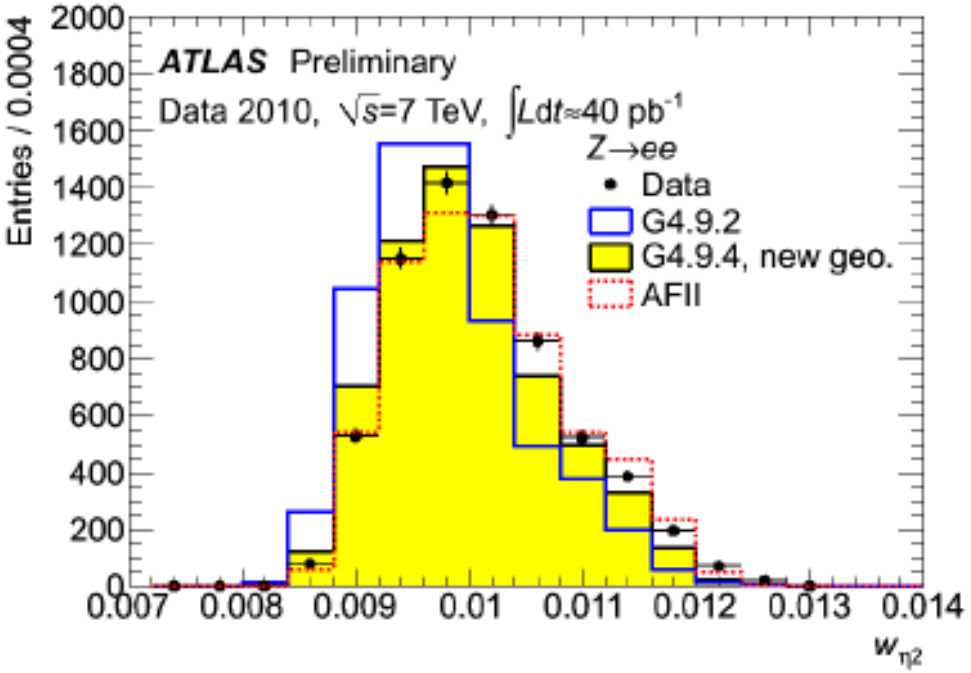
Geometry and speed

- Geometry simplification is a major factor in speed-up
- One wonders: aren't those O(mm) things a bit of a luxury for a simulation, if then you correct your material budget to data anyway?



Tunability

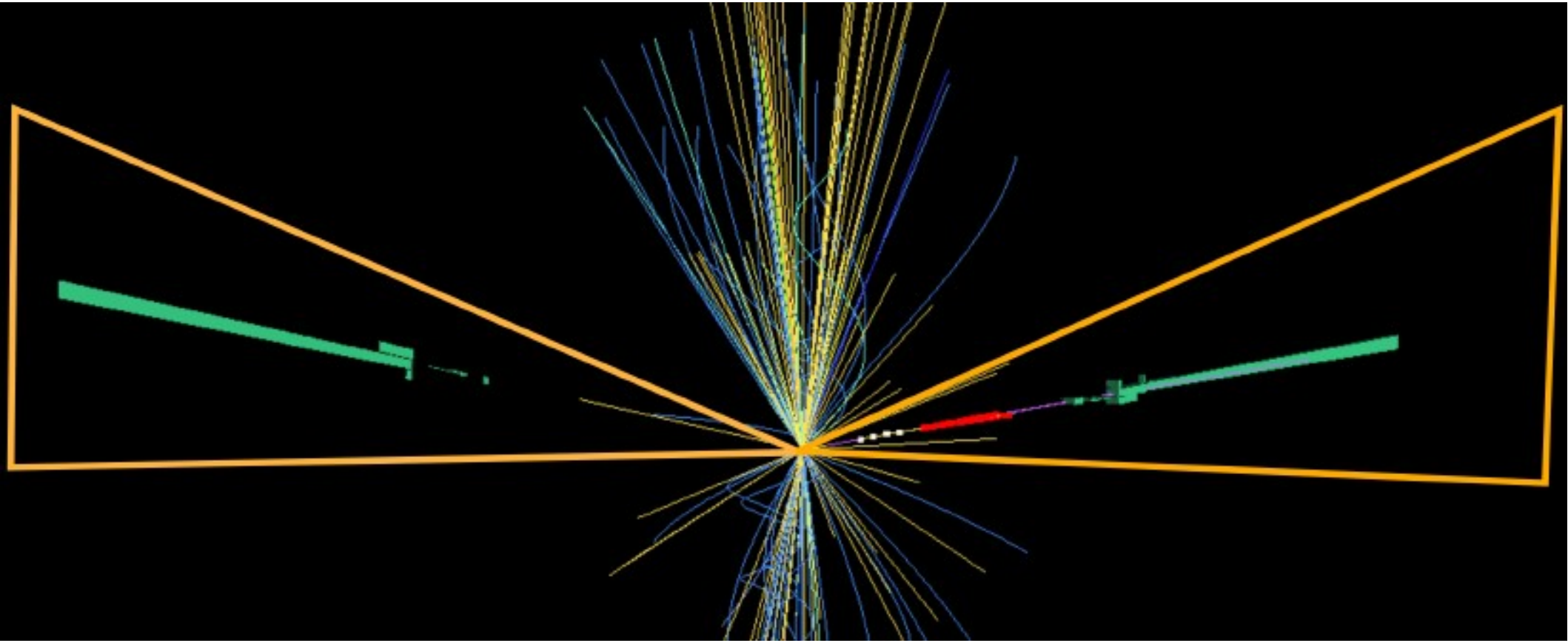




- When asked to justify the maintenance of a FastSim we usually cite speed as the prime reason
- What about mentioning tunability as prime reason?
- (Example from generators: Pythia less "ambitious" than Herwig, but more widely used because it has more knobs)

Do little and do it well

- Even for detailed studies, you may not always want the full picture (e.g., MVA training):



THANKS

- Martina Mende for organization, webpage, practical help to attendees, etc.
- Thomas Schoerner-Sadenius, Allianz support
- Thomas Naumann, who found an excellent place for yesterday's dinner
- All of you for coming

See you next year!