PANDA EMC Software Development

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EMC Software Development

BMBF application to develop EMC software

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Organizing Principles

- Software is the link between Hardware and Analysis
  - Serve both communities.
- Externally, easy to use and transparent
  - hardware users: not using pandaroot, too daunting
    - Simplify to include/analyze Proto setups.
  - analysis users: need transparency
- Optimize for speed
  - Full Simulation of 5 γ's: $<$ 1 event/second
  - Software could become too slow to use.

Summary and First Steps

EMC Software Current Status

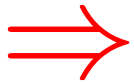
- Simulation Geometry: crystals only (some exceptions)
- Geometry Handling: needs optimization
- Digitization and Reconstruction require significant upgrades and optimization

Important First Steps

1. Optimize Geometry Handling
2. Complete Crystal and (in front/between crystals) Passive Structure definition in ROOT Geometry files
3. Upgrade reconstruction using new geometry
4. Incorporate hardware specific digitization characteristics
5. ...

Cooperation

good working relationship between hardware and software development

 hardware is utilized to its full potential

Use pandaroot

- Easier for you to get your simulations using pandaroot
- Hardware characteristics get encoded directly into pandaroot

Outlook

- Currently, Evaluation and Planning Stage.
  - Evaluating the current software.
  - Looking for collaborators and ideas.
  - Gathering information from hardware developers.
  - Spending time planning for the optimal methods
- Not interested in quick-fixes
  Start building a solid foundation.
  1. Solve simulation geometry issues FIRST
  2. THEN reconstruction, kinematic fitting, ...

Ideas? Comments?