Title: FY08 Plan for Physics Generator Simulations/PhySim
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PhySim.Goal:

- Provide support for the tuning and validation of event generators used in the Run2 physics program. Use Run2 knowledge and experience in migration to the LHC efforts on global CMS and the local LHC Physics Center.

PhySim.Strategy:

- Work with Run2 physicists to validate and tune event generators by studying data. Participate in the CMS Generators and QCD groups to assess needs and provide tools and expertise where necessary.

Objectives for FY08 [with projected FTE in brackets]

1. Maintenance and development of Pythia software. This includes: (1) fixing known problems in the Fortran versions of the code; (2) adding new features when requested by trusted parties or when it is needed for generator tuning; and (3) checking and contributing to aspects of the Pythia8 (C++) code.
   [0.3FTE]

2. Participate in global analysis of Run2 data (Vista) as for generator tuning and validation. This includes: (1) fixing generator parameters; (2) evaluating aspects of the data that may be related to generators; (3) and developing a method for efficient generator tuning. In the latter case, I project to provide a hadron collider tune of the new parton shower in Pythia and a comparison of MadGraph and AlpGen W/Z+jets matched predictions.
   [0.3FTE]

3. Participate in implementation of global analysis tools into CMS for event generator tuning and validation. This includes participating in the CMS Generator and QCD groups. I plan to add Vista tools for validation into CMSSW by the end of 2007 and to contribute to the Di-Jet analysis efforts.
   [0.3FTE]

4. Provide advice, where necessary, for Run2 and LHC generator tools. This includes attending internal physics meetings.
   [0.1FTE]