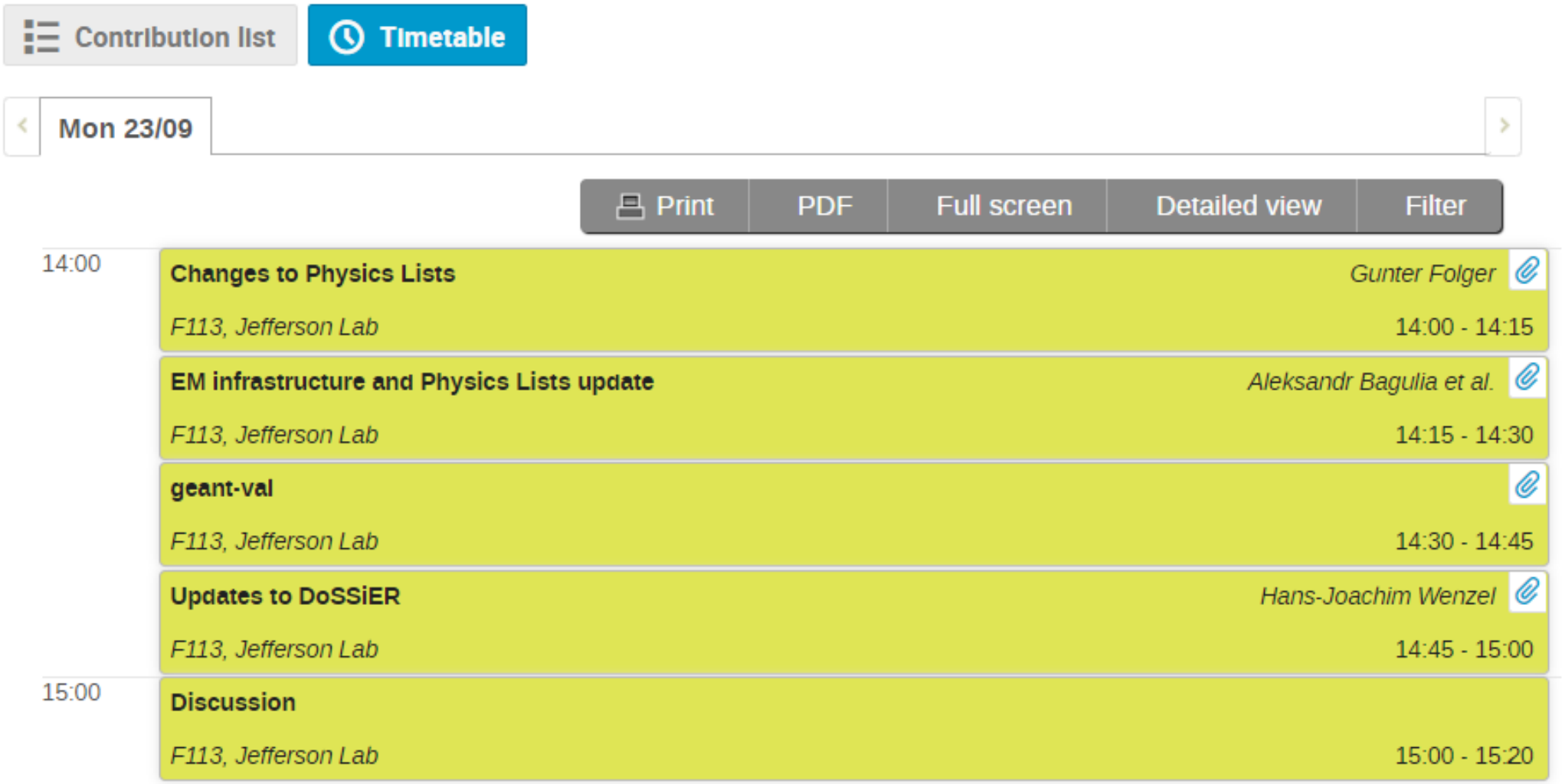
Session Parallel 1A
Physics lists and validation tools



Updates to physics lists

- Similar to presentation in plenary
- Technical changes to physics lists
  - Remove obsolete constructs
  - Removal of default cross sections in hadronics -> follow-up in physics lists
  - Proposal to delete ‘temporary’ objects after physics is initialized needs follow-up
    - This concerns builders and constructors
- Summary of changes to physics – more detail given in plenary session dedicated to physics

EM infrastructure and Physics Lists update

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For Geant4 EM working group

24th Geant4 Collaboration Workshop
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Results of migration to HTCondor

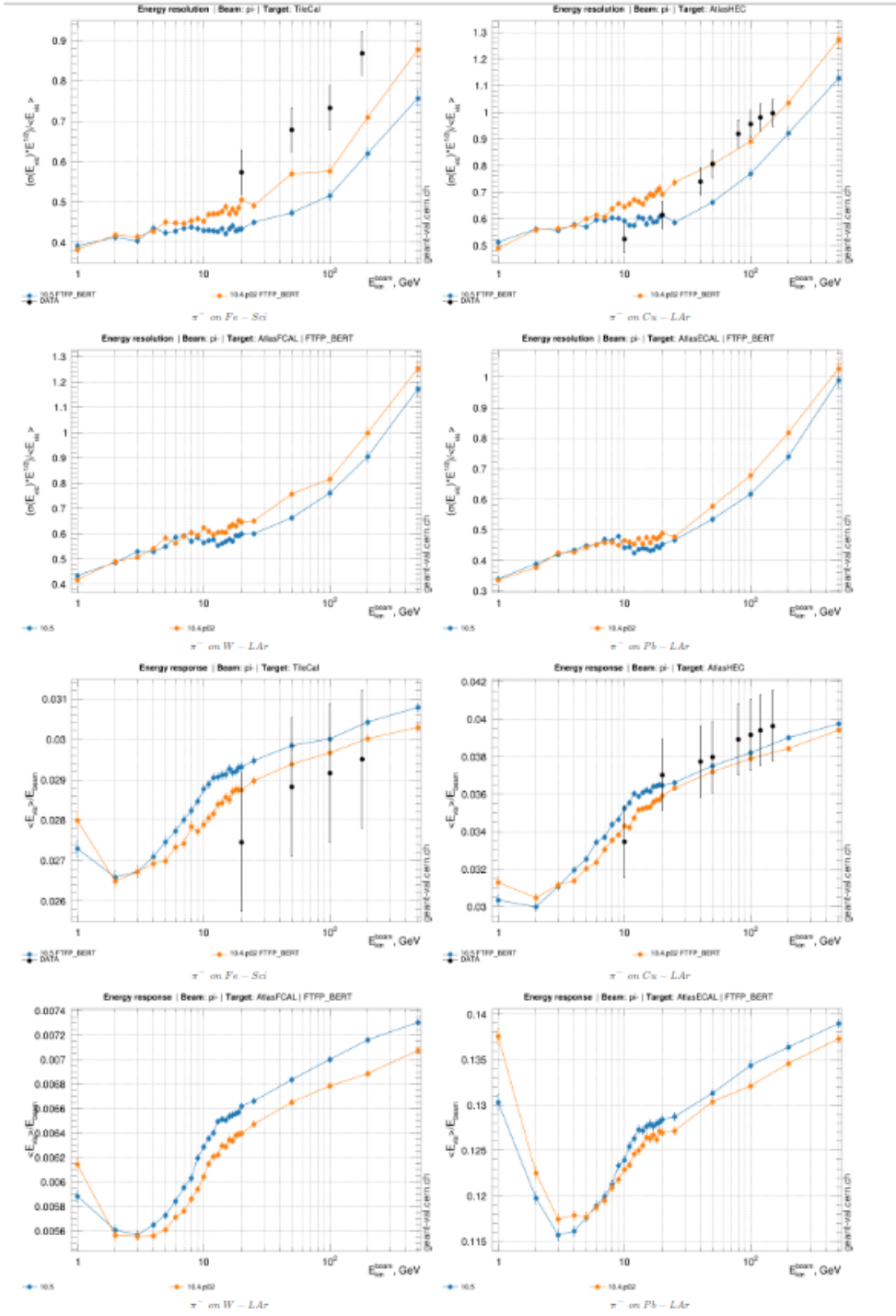
- Individual approach for tests was required
- EM testing suite is migrated from afs to EOS were made
- As a result of migration, productivity significantly increased
  - Astronomic time for full run of all tests requires ~4 hours
    - Was ~24 hours before
  - This is achieved due to submission of many jobs in parallel
- Results are at EOS linked to EM web:
  - https://test-geant4-tools.web.cern.ch/test-geant4-tools/emtesting/electromagnetic/index.php
  - Summaries: https://test-geant4-tools.web.cern.ch/test-geant4-tools/emtesting/

EM testing suite and Geant-val

- In parallel with EM testing suite development and migration to HTCondor/EOS a good part of EM tests were added to Geant-val
  - (https://geant-val.cern.ch/layouts)
  - G4MSBG: https://twiki.cern.ch/twiki/bin/view/Geant4/G4MSBG
- It seems to be useful continue support both tools
  - Advantages of the EM testing suite
    - Full testing suite or subset of tests may be started locally by a developer
      - Software is in Geant4 git repository
    - Some of tests include fitting and computation of $\chi 2$
    - Summary page allowing overview of all major test results
  - Advantages of the Geant-Val
    - Much more statistics and number of runs
    - Regression may be performed using on-line selection of Physics Lists and Geant4 versions
    - Since Geant4 10.5 there are cases, when Geant-Val allowed to find problems in EM models, even more effective and useful EM validation for 10.6

Geant-Val

- Showed a demo similar to plenary
- Geant-val seems widely accepted as validation and regression testing tool
  - Offers integrated solution from running jobs to providing plots



Updates to DoSSiER

- DoSSiER Web Application and Web Service no longer actively developed
  - Will eventually become unavailable
  - Continue to maintain the underlying postgresql database and data
- JSON Export format available to transfer data into any other system