DC Data-MC Matching

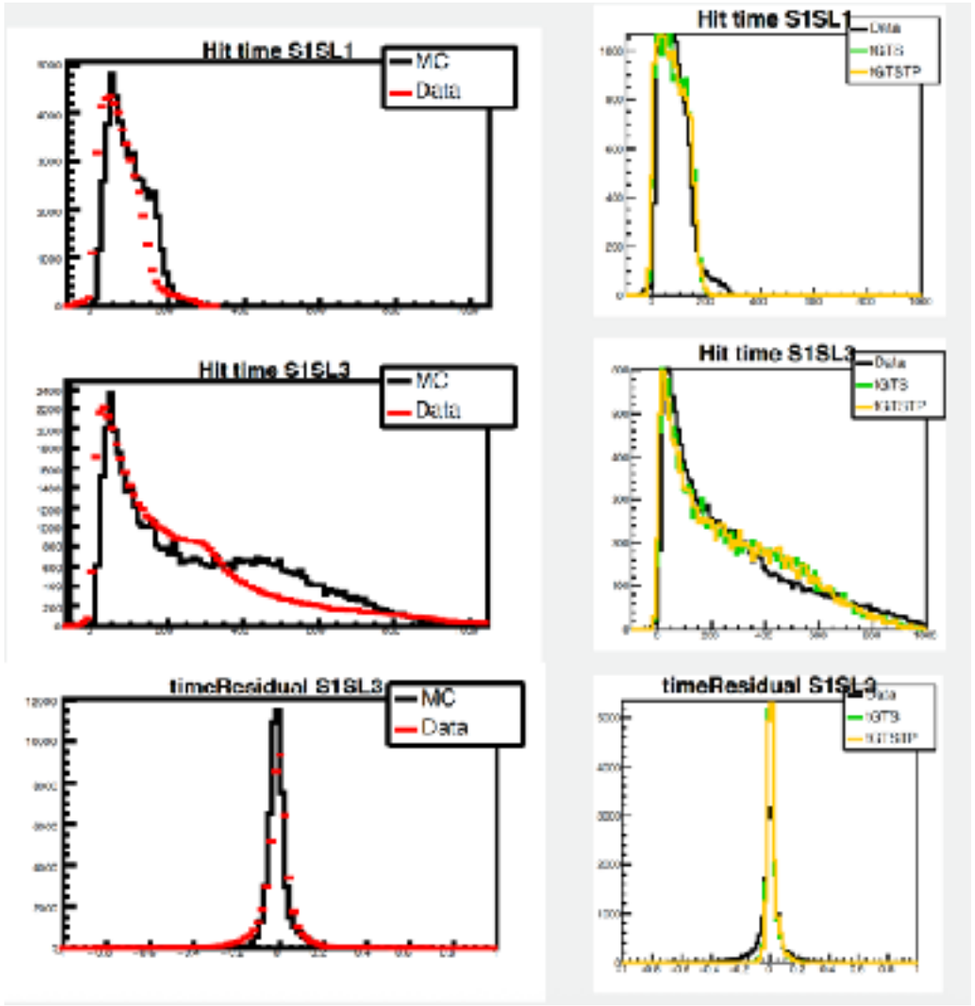
Florian Hauenstein

MC-Data Matching Workshop

11/18/26

DC Data-MC Matching (2024)

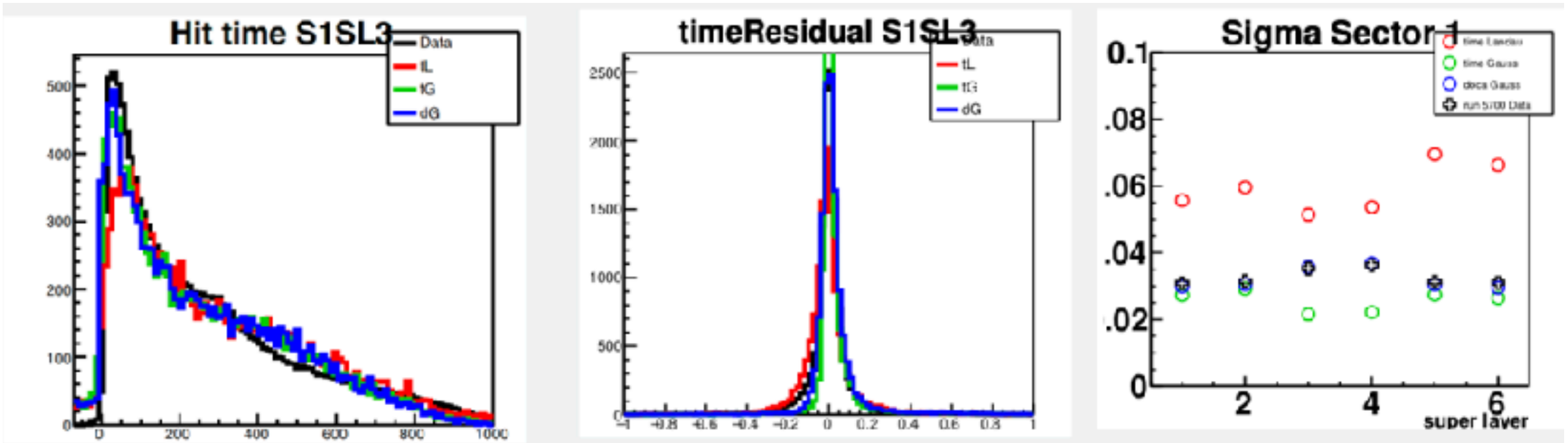
- **Updates to DC digitization:**
  - **Missing terms added to simulated time (TProp, TFlight)**
  - **Read from new pressure dependent T2D tables**
  - **Tried different smearing models for DC hits**
- **Findings from initial tests:**
  - **Bias in calibrated time offsets for MC**
  - **Simulated doca dependent inefficiency might not be correct**



Plots from M. Tenorio Pita's work (2024)

https://indico.jlab.org/event/829/contributions/14078/attachments/10727/16254/DC_Collaboration_03_2024_v1.pdf

with T_{Flight}, no T_{prop}



DC Data-MC Matching - Current Status

- **Real run number based T2D**
- **In the works: New doca dependent inefficiency function within hit processing**
- **Identified the need to do calibration of smearing and inefficiency function for each run group and HV setting**

- **Plans for next month:**
  - **T0/T2D Calibration of MC to study biases of calibration procedures**
  - **Redo data-MC comparisons of hit times and residuals —> updates for smearing model**
  - **Make Time-to-distance function run dependent i.e. pressure dependent**