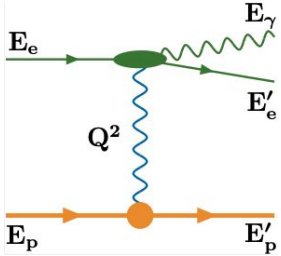
Lumi TDR plan

Two subsystems to address
Direct Photon - Pair Spectrometer
Beamline components



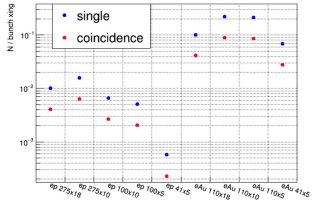
Single document

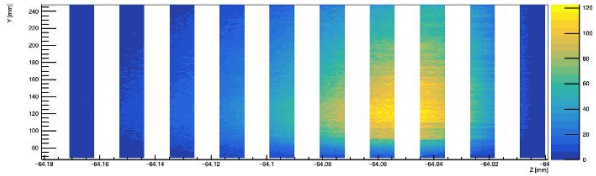
- Overview on both systems
- Requirements for each subsystem
- Justification for each subsystem
- Implementation will be split for each subsystem but will include common sections (detector integration, ES&H, QA,...)

Where we are at: **Pair Spectrometer**

- **Requirements**
  - From Physics
  - Radiation Hardness
  - Expected Data rates
- **Justification**
  - Device concept and justification for the technological choice
  - Description
    - General device description
    - Sensors
    - FEE (for rates with reference to a global table in electronics/DAW section)
    - Other components
  - Performance from available input (lab studies, test beam, prototyping, simulation studies)
- **Implementation**
  - Services (cooling, gas system, sensor power supply, FEE power supply…)
  - Subdetector mechanics and integration
  - Calibration, alignment and monitoring strategy and tools
  - Status and remaining design effort
    - R&D up to here; E&D status and outlook
    - Other work needed for design completion
    - Status of Maturity
  - ES&H aspects and QA planning
  - Construction planning
  - Collaborators and their roles, resources and workforce
  - Risk and mitigation strategy

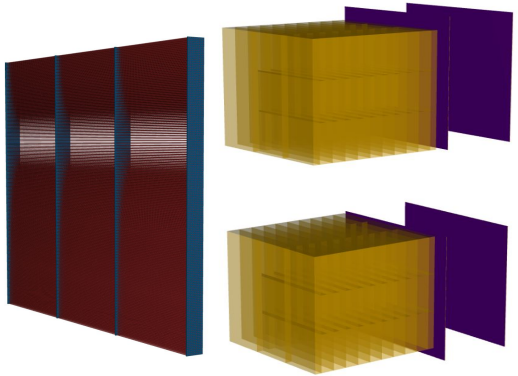
Where we are at: **Pair Spectrometer**





- **Requirements**
  - **From Physics**
  - **Radiation Hardness**
  - **Expected Data rates**
- **Justification**
  - **Device concept and justification for the technological choice**
  - **Description**
    - **General device description**
    - **Sensors**
    - **FEE (for rates with reference to a global table in electronics/DAQ section)**
    - **Other components**
  - **Performance from available input (lab studies, test beam, prototyping, simulation studies)**
- **Implementation**
  - **Services (cooling, gas system, sensor power supply, FEE power supply…)**
  - **Subdetector mechanics and integration**
  - **Calibration, alignment and monitoring strategy and tools**
  - **Status and remaining design effort**
    - **R&D up to here; E&D status and outlook**
    - **Other work needed for design completion**
    - **Status of Maturity**
  - **ES&H aspects and QA planning**
  - **Construction planning**
  - **Collaborators and their roles, resources and workforce**
  - **Risk and mitigation strategy**

Where we are at: **Pair Spectrometer**



- Requirements
  - From Physics
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  - Expected Data rates
- Justification
  - Device concept and justification for the technological choice
  - Description
    - General device description
    - Sensors
    - FEE (for rates with reference to a global table in electronics/DAQ section)
    - Other components (Magnets? BeamLine components? Exit windows?)
  - Performance from available input (lab studies, test beam, prototyping, simulation studies)
- Implementation
  - Services (cooling, gas system, sensor power supply, FEE power supply…)
  - Subdetector mechanics and integration
  - Calibration, alignment and monitoring strategy and tools
  - Status and remaining design effort
    - R&D up to here; E&D status and outlook
    - Other work needed for design completion
    - Status of Maturity
  - ES&H aspects and QA planning
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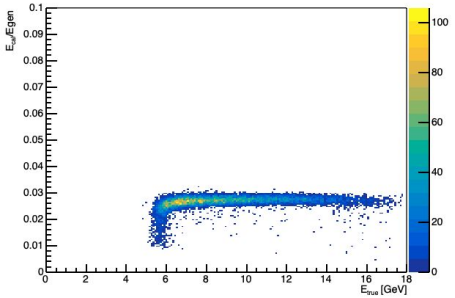
  - Risk and mitigation strategy



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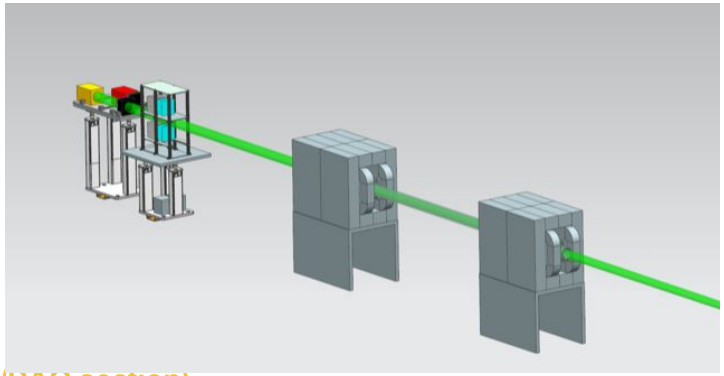

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  - Description
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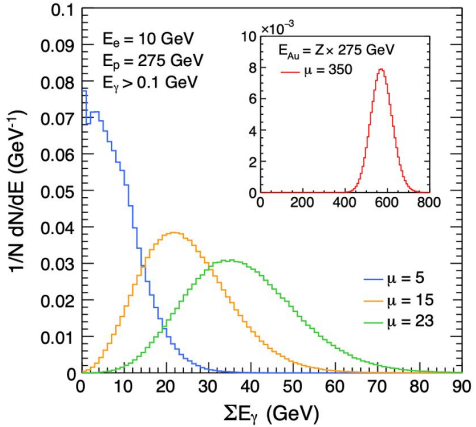
    - Sensors
    - FEE (for rates with reference to a global table in electronics/DAQ section)
    - Other components
  - Performance from available input (lab studies, test beam, prototyping, simulation studies)
- Implementation
  - Services (cooling, gas system, sensor power supply, FEE power supply…)
  - Sub Detector mechanics and integration
  - Calibration, alignment and monitoring strategy and tools
  - Status and remaining design effort
    - R&D up to here; E&D status and outlook
    - Other work needed for design completion (Test beam in 2024 - construction procedure development)
    - Status of Maturity
  - ES&H aspects and QA planning
  - Construction planning (Other components: Magnets, BeamLine components)
  - Collaborators and their roles, resources and workforce -- Limited Manpower
  - Risk and mitigation strategy

Where we are at: **Direct Photon**



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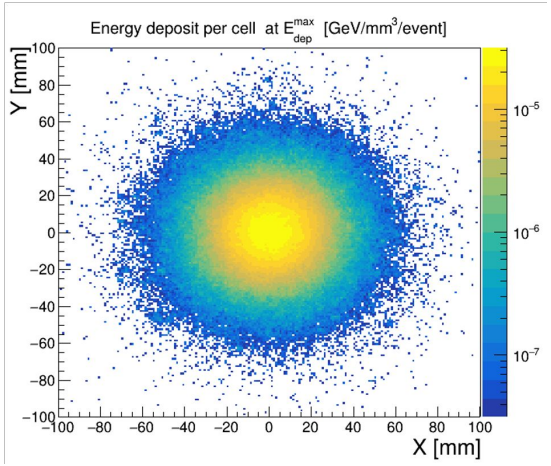

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    - FEE (for rates with reference to a global table in electronics/DAQ section)
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  - Performance from available input (**lab studies, test beam, prototyping,** simulation studies)
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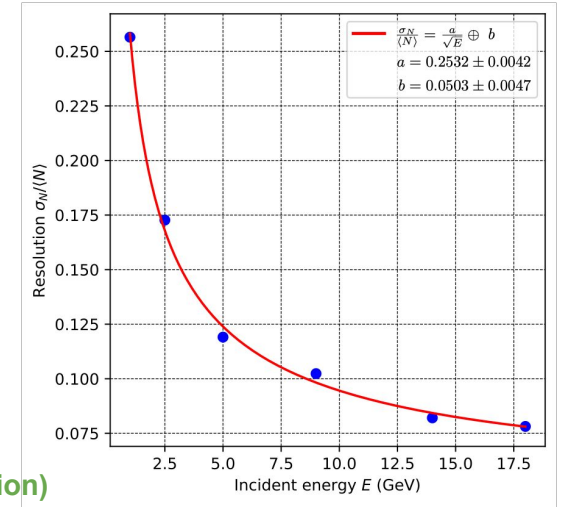
  - Construction planning
  - Collaborators and their roles, resources and workforce
  - Risk and mitigation strategy

Where we are at: **Direct Photon**



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  - Status and remaining design effort
    - R&D up to here; E&D status and outlook
    - Other work needed for design completion
    - Status of Maturity
  - ES&H aspects and QA planning
  - Construction planning
  - Collaborators and their roles, resources and workforce - **resources needed for FEE development**
  - Risk and mitigation strategy