Highly granular scintillator-strip calorimeter for future Higgs factories

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Scintillator-strip ECAL (Sc-ECAL)

✓ Highly granular calorimeter for Higgs factories
- Based on scintillator strips readout by SiPM
- Virtual segmentation: 5 × 5 mm^2 in x-y configuration

Large technological prototype constructed

✓ Target
- Use the same technology as foreseen in full scale detector
- Evaluate the performance of Sc-ECAL using full 30 layers

Clibration

✓ **Per-channel calibration succeeded**
- Gain, MIP, pedestal, high-gain vs. low-gain, cross-talk and after-pulse

Performance evaluation

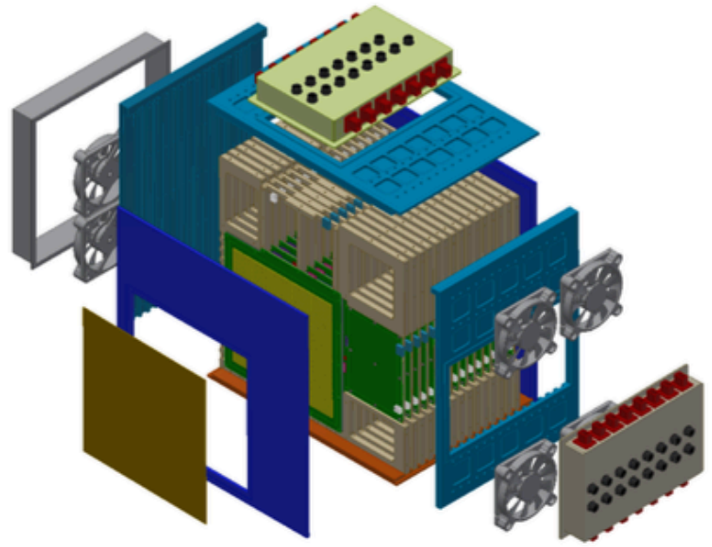
✓ **Good stability**
- All calibration parameters are stable during long-term tests

✓ **Sufficient detection efficiency and position resolution**
- Achieve the requirement for Sc-ECAL

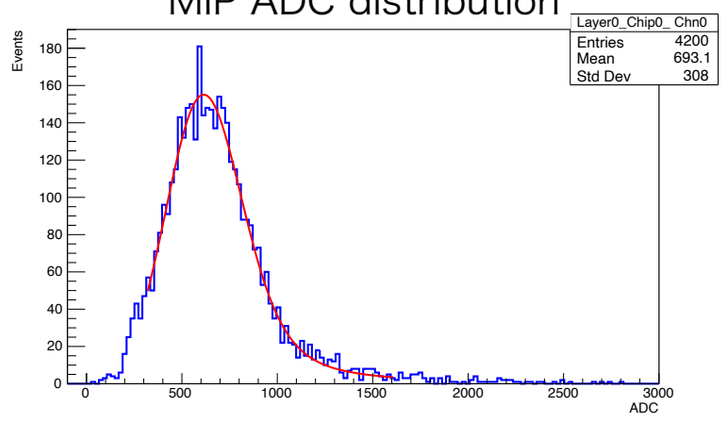
✓ Cosmic-ray shower analysis
- Data and simulation match well when comparing shower properties
- **Shower events can be detected as expected at the simulation**

Sc-ECAL is found to be a promising and mature technology for highly granular calorimeter

Large technological prototype



MIP ADC distribution



Cosmic-ray induced shower