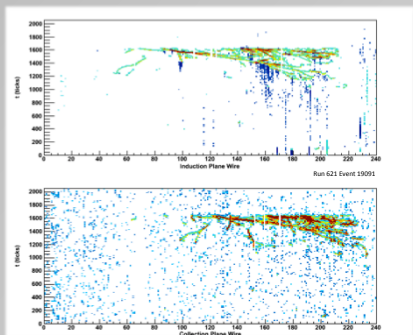


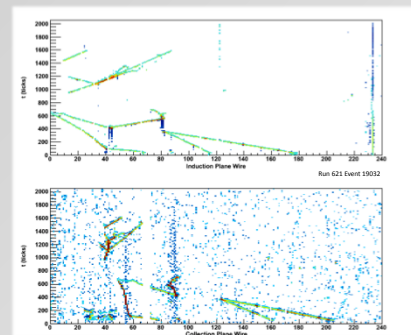
GRID DATA MANAGEMENT FOR LIQUID TIME PROJECTION CHAMBER DATA ANALYSIS

Sigve Haug, Gianfranco Sciacca, Thomas Strauss, Cyril Topfel – LHEP, University of Bern, Switzerland
 Henning Müller, Xin Zhou - Medical Informatics, University Hospitals and University of Geneva, Switzerland
 Jukka Kommeri - Helsinki Institute of Physics, Finland



PHYSICS DATA OBJECTS
LIQUID ARGON TIME PROJECTION CHAMBER EVENTS ARE RECORDED AS 2-DIMENSIONAL IMAGES AT THE LABORATORY OF HIGH ENERGY PHYSICS OF THE UNIVERSITY OF BERN:

- COSMIC MUONS
- RADIOACTIVE SOURCES
- LASER
- LARSOFT SIMULATIONS



DATA MANAGEMENT AND GOALS

- DATA RECORDED ON DAQ SERVERS IN PROXIMITY OF READOUT ELECTRONICS (LIMITED ACCESS)
- MOVE TO A DURABLE DATA STORAGE FACILITY FOR REMOTE SECURE ACCESS AND RETRIEVAL BY PHYSICISTS AT PARTICIPATING INSTITUTES:
- E-LEARNING, MASTERCLASSES: EVENT IMAGE DISPLAY VIA A WEB BROWSER
- VISUAL EVENT INSPECTION AND SELECTION FOR A SPECIFIC PHYSIC PROCESS OF INTEREST FROM A WEB INTERFACE
- EVENT ANALYSIS, RECONSTRUCTION (LARSOFT)
- AUTOMATED EVENT SELECTION: CONTENT BASED IMAGE RETRIEVAL (CBIR) BASED ON THE GNU IMAGE FINDING TOOL (GIFT)

WHY GRID TECHNOLOGIES?

ENSURE SECURE AND TRANSPARENT REMOTE DATA ACCESS FOR COLLABORATORS OWING THE CORRECT CREDENTIALS:

- VIRTUAL ORGANISATION MEMBERSHIP SERVICE (VOMS) AND THE X.509 PUBLIC KEY INFRASTRUCTURE. OFFERS THE AUTHENTICATION AND DELEGATION MECHANISMS PROVIDED BY THE GLOBUS TOOLKIT GRID SECURITY INFRASTRUCTURE (GSI)
- LTPC VIRTUAL ORGANISATION
- DISK POOL MANAGER (DPM) GLITE STORAGE ELEMENT: DURABLE STORAGE PLATFORM, GSI-ENABLED
- THE CPU-INTENSIVE IMAGE DISCRIMINATION PROCESSING REQUIRES ACCESS TO EXTENDED COMPUTING RESOURCES: THE SWISS MULTI-SCIENCE COMPUTING GRID (SMSCG)

