

Widespread OnTrack, Initial Proposal for WP4: Use of CMS Open Data for Dissemination

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Context

- CMS Open Data (includes up to 50% of collected data and simulation datasets)
- IFCA team experience on using Open Data:
 - Exercise for HEP undergraduate courses at University of Cantabria:
 - the analysis of dimuon events:
 - what is a muon and how it is detected and measured
 - The concept of invariant mass
 - Resonances and the Z boson
 - The Z resonance: how to make a fit, the B-W shape, the errors, etc.
 - Use of jupyter notebook as an interactive web based tool
- On-going work (see next CMS week):
 - Technical:
 - Provide “samples” as json files with metadata (towards FAIR rules for Open Data)
 - Integrate structures in Python (no need for root files)
 - Integrate Datalab for Master in Data Science at University of Cantabria
 - Design new exercises oriented to high-school level
 - Ideas from other on-going uses for CMS Open Data
- Link to citizen science initiatives ?

Activities proposed

- Prepare short courses (using edX template) for use at different levels: high school, university (undergraduates, master)
- Integrate in those courses:
 - Exercises using CMS Open Data via jupyter notebooks, loading specific json files (dimuons, higgs, top, etc.) for both data and simulation, where different analysis and visualizations can be done.
 - Videos introducing the exercises, in English, Greek, Spanish, Italian
 - Specific section of general interest for Open Data: metadata, FAIR rules, etc.
- Connect with the different communities for exploitation:
 - Organize workshops with high school and university professors
 - Develop several pilot experiences in selected centers
- Link with Citizen Science initiatives

WP4: Use of CMS Open Data for Dissemination

- Objectives: promote the use of CMS open data in educational activities, at different levels, including both the study of physics and an introduction to tools to explore open data
- Resources (54 PM): 36 PM UC (University Cantabria), 18 PM U Cyprus (?)
- Tasks:
 - T4.1: General tools to facilitate the use of CMS Open Data
 - T4.2: Introducing open data at High School level
 - T4.3: Using CMS Open Data in courses at Universities
 - T4.4: Connecting with Citizen Science
- Deliverables:
 - D4.1 M3,R,PU: Detailed Plan for actions.
 - D4.2 M12, R,PU: Implementation report at first year
 - D4.4 M15, OTHER, PU: Notebook based activities adapted for High School, University, and Citizen Science
 - D4.4 M30, R,PU: Final Implementation report
- Milestones:
 - MS4.1, M3: Plan ready
 - MS4.2, M15: Initial versions of Notebooks released
 - MS4.3, M24: All planned dissemination activities in track and aligned with global exploitation plan