EMCal Status

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Geometry tasks

Geometry as installed (1319)	jennifer.klay	-	29/01/2007	-	31/03/2009
Finalization of the detector geometry: testing of spaceframe and checking for overlaps (2533)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
Move geometry to new EMCAL library for analysis tasks access. (2626)	gustavo.conesa	Magali.Estienne (100%)	18/06/2009	-	31/07/2009

- Task 1319: Geometry as installed
  - 2 SM: $80° < \phi < 120°$, $-0.7 < \eta < 0$ (on the pit now)
  - 3 SM: $80° < \phi < 140°$, $-0.7 < \eta < 0$
  - 4 SM: $80° < \phi < 120°$, $-0.7 < \eta < 0.7$
  - In Charge Jenn, new expected due date 31/07/09
- Task 2533: Finalization of the detector geometry: testing of spaceframe and checking for overlaps:
  - Detector geometry implemented is ideal.
  - Space frame implementation is OK.
  - Need survey data (already existing?) to test misalignment in software, check overlaps.
  - In charge Jenn, new expected due date 31/07/09
- Task 2626 (new): Move geometry to independent library.
  - Geometry is now in base library. Need to move it to an independent library for analysis purposes.
  - Magali's in charge, expected due date 31/07/09
- Task 2343: Material budget
  - Nothing to be done, status changed to done.

Simulation tasks

!	Handling of the time information from hits during digitization (2534)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Account for detector response in the time information stored in digits (2535)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
✓	Implementation of track references (2536)	jennifer.klay	jennifer.klay (100%)	16/03/2009	04/03/2009	30/05/2009
!	Verification of event merging procedures (2537)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Correct treatment of the detector signal in the sdigits for event merging Implementation of the embedding methods (2538)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
»	Correct detector response, GEANT and FLUKA (2627)	gustavo.conesa	-	18/06/2009	-	30/09/2009

- Task 2536: Implementation of track references
  - Implemented since February, task done.
- Task 2538: Correct treatment of detector signal in sdigits correct event merging implementation
  - Keep as SDigits not the digitized signal (energy+cell+time) but simulated altro sample (sample of ADC counts per time bin).
  - Needed also for correct trigger simulation.
  - In Charge Rachid, expected new due date 31/07/09
- Task 2537: Verification of event merging procedures
  - With present definition of sdigits merging is working
  - Need to implement event embedding.
  - Merging method will change when Task 2538 finished.
  - Expected due new date 31/07/09
- Task 2534: Handling of the time information from hits during digitization
  - Simple method to associate time to a digit. New method needed.
  - Nobody in charge, to be done after redesign of sdigits in task 2538 is done.

Simulation tasks

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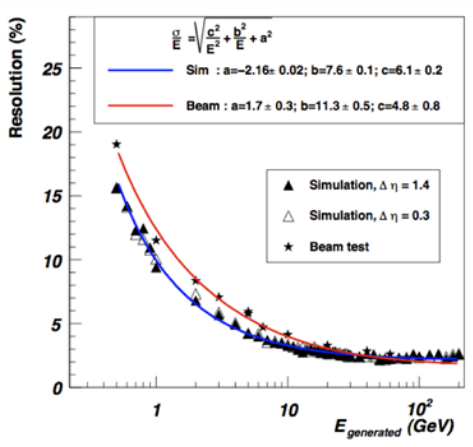
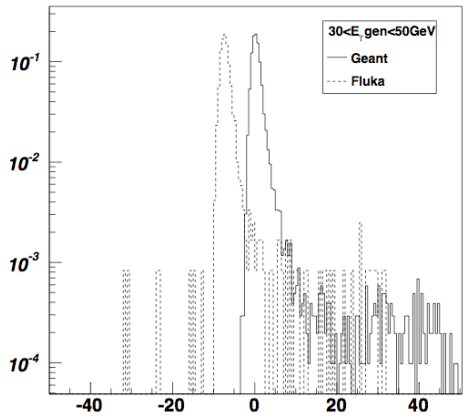
»	Correct detector response, GEANT and FLUKA (2627)	gustavo.conesa	-	18/06/2009	-	30/09/2009

- Task 2627 (new): Correct detector response.
  - GEANT simulations and beam test show a few % discrepancy, need to understand why and correct the effect.
  - FLUKA simulations show unexpected bigger reconstructed energy than generated. Under investigation.
  - In Charge Gustavo and Amaya, proposed due date 30/09/2009
- Task 2535: Implement realistic time resolution in digits.
  - In the code now we have a time resolution of 0.3 ns
  - David found a time resolution of 0.6 ns with LED measurements in 2007 beam test, comparing adjacent towers. Ideal case
  - Need to check dependency with tower amplitude. It might not be a simple number but a function of the amplitude.
  - In charge David, new expected due date 31/07/09





Trigger tasks

!	Implementation of the code for trigger parameters for the simulation of the trigger input to the CTP (2548)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Testing of trigger simulation with raw data (2549)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
»	Update trigger simulation class with realistic hardware description (2628)	gustavo.conesa	gustavo.conesa (100%)	18/06/2009	-	31/07/2009

- Task 2628 (new): Update trigger simulation tasks
  - AliEMCALTrigger needs to be updated
    - Do not work as designed hardware
    - Trigger definitions not up-to-date
    - Fix trigger thresholds.
  - Suggested new trigger classes:
    - AliEMCalTrigger, manager class
    - AliEMCALTriggerBoard, defines trigger subregions, deriving
      - AliEMCALTriggerTRU and AliEMCALTriggerSTU
    - AliEMCALTriggerPatch (x, y, sum): performs the patch
    - AliEMCALTriggerData: contains triggering data to be stored in the digit tree for post processing.
    - AliEMCALTriggerParam: subregion, patch sizes; FastOR responds, time window width …
  - Need modification of sdigits and digits simulate to triggers, simulation Task 2538
    - Sdigits should be pulse-shape like
    - New branch at the digits level to consider "trigger digits"
  - Rachid in charge, expected data 31/07/09
- Task 2548: Implementation of the trigger parameters in OCDB (?)
  - Depends on previous task.
  - In charge Rachid, expected new due data 31/07/2009
- Task 2549: Testing of trigger simulation with raw data
  - Depends on first task and existence of data.

Reconstruction tasks

✔	Global tracking integration (2258)	jennifer.klay	-	01/01/2008	01/01/2009	01/09/2008
✔	Implementation of RecoParams: cosmic, high flux, low flux, calibration (2540)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2009	30/05/2009
!	PID finalization: recalculations of parameters after digitization (2541)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Verification of PID performance for pp (2542)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Verification of PID performance for PbPb (2543)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
»	Dead channels in reconstruction (2629)	gustavo.conesa	-	18/06/2009	-	30/06/2009
»	Study effect of dead channels in reconstruction (2630)	gustavo.conesa	-	18/06/2009	-	30/09/2009
»	Study effect of real misalignment in reconstruction (2631)	gustavo.conesa	-	18/06/2009	-	31/07/2009
»	Track matching improvement (2632)	gustavo.conesa	jennifer.klay (100%)	18/06/2009	-	31/07/2009
»	Cluster unfolding for eta != 0 (2633)	gustavo.conesa	-	18/06/2009	-	31/07/2010

- Task 2540: Implementation of reco params
  - Done since a couple of years ago.
- Task 2258: Global tracking integration
  - Done since a couple of years ago.
- Task 2632 (new): Track matching improvement
  - Low electron matching efficiency found in grid productions, need to increase it.
  - In Charge Jenn, expected due date 31/07/09
- Task 2633: Cluster unfolding implementation for $\eta \neq 0$
  - Cynthia studied and implemented 1.5 years ago the "simple" case $\eta = 0$
  - Nobody in charge right now, not urgent task, expected due date next year.

Reconstruction tasks

✔	Global tracking integration (2258)	jennifer.klay	-	01/01/2008	01/01/2009	01/09/2008
✔	Implementation of RecoParams: cosmic, high flux, low flux, calibration (2540)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2009	30/05/2009
!	PID finalization: recalculations of parameters after digitization (2541)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Verification of PID performance for pp (2542)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Verification of PID performance for PbPb (2543)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
»	Dead channels in reconstruction (2629)	gustavo.conesa	-	18/06/2009	-	30/06/2009
»	Study effect of dead channels in reconstruction (2630)	gustavo.conesa	-	18/06/2009	-	30/09/2009
»	Study effect of real misalignment in reconstruction (2631)	gustavo.conesa	-	18/06/2009	-	31/07/2009
»	Track matching improvement (2632)	gustavo.conesa	jennifer.klay (100%)	18/06/2009	-	31/07/2009
»	Cluster unfolding for eta != 0 (2633)	gustavo.conesa	-	18/06/2009	-	31/07/2010

- Tasks 2630 and 2631 (new): Study effect of dead channels and misalignment in reconstruction.
  - Depend on tasks 2629 and 2533
  - Jenn in charge, expected due date 30/09/09
- Task 2541: PID finalization
  - Parameters recalculation needed, different for pp and PbPb environment.
  - Make it possible to use during analysis, like for the geometry, to recalculate PID.
  - Marie in charge, expected new due data 31/07/09
- Task 2542 and 2543: Verification of PID performance for pp and PbPb
  - Depends on task 2541
  - Need data, grid data for pp available, PbPb coming soon.
  - In charge Marie, expected due date 30/09/09

Raw data

!	Finalization of Raw Data format (2539)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
»	Raw data fast fitting (2634)	gustavo.conesa	Aleksei.Pavlinov (100%)	18/06/2009	-	31/07/2009

- Task 2539: Finalization of Raw Data format
  - We are using the latest known-to-be-working-OK-for-us-firmware-version (v2) from Nov 2008.There is a version 3 of the RCU firmware (also involving a data format change) under development that we do not plan to use at least for the first LHC run.
  - In charge David and Francesco, can we change this to done?
- Task 2634: Raw data fitting
  - Now: TMinuit used, too slow, too dependent on initial parameterization.
  - Implement fast fitting procedure from ALICE-INT-2008-026 for PHOS and EMCAL.
  - Tests show 40 times faster performance of this code and event a bit better accuracy than standard fitting procedure.
  - Need to set the fitting parameters, for that we need to check shape of pulses with data from calorimeters installed.
  - In charge Alexei, expected due date 31/07/09

QA

Pre-production validation (1423)	jennifer.klay	-	01/02/2007	-	15/07/2009
Reference distribution (2314)	jennifer.klay	jennifer.klay (100%)	23/05/2008	-	27/06/2008
Raw data QA (2337)	jennifer.klay	-	07/07/2008	01/05/2009	29/08/2008
Implementation of reconstruction in dataMaker (2550)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2009	30/05/2009
Implementation of run type (2551)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
Implementation of simulation in QA checker (2552)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2009	30/05/2009
Implementation of reconstruction in QA checker (2553)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/02/2009	30/05/2009
Implementation of reference data (2554)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
Add MC QA ESD histograms, create QA analysis task that calls the QA frame (2635)	gustavo.conesa	-	18/06/2009	-	31/08/2009

- Task 1423: Preproduction validation
  - No person in charge. When this will be done?
- Now we have the QA frame filling some histograms in all the steps from Raw to ESDs.
- Tasks 2550, 2552, 2553: Implementation in QA frame
  - Done since several months ago.
- Task 2551 and 2554: Implementation of run type and reference data
  - Need to produce data to generate reference histograms, pp and PbPb (soon) data available on the grid.
  - Need also to define what histograms are for the shifters and what are for the experts.
  - In charge Sevil, new expected due date 31/07/09
- Task 2635 (new): Add MC QA ESD histograms, create QA analysis task that calls QA frame from analysis.
  - Lots of new QA histograms used in EMCAL production validation and implemented in class PWG4/PartCorrDep/AliAnaCalorimeterQA
  - Must be moved the code and histograms to the QA frame when checking the ESDs
    - Most of the histograms are MC related, is there a switch to fill/create histograms depending if it is real data or montecarlo?
  - Also we have to write an analysis task that should execute the QA after the reconstruction.

Calibration

!	*SHUTTLE* (220)	jennifer.klay	gustavo.conesa (100%)	01/01/2006	-	31/03/2009
!	preprocessor algorithm implemented for use case 1/2 (221)	jennifer.klay	gustavo.conesa (100%)	01/01/2006	-	31/03/2009
!	*Online* (1455)	jennifer.klay	-	25/01/2007	-	15/08/2008
!	Provide interface to time-dependent calibration corrections (2329)	jennifer.klay	jennifer.klay (100%) (+2)	04/06/2008	-	15/08/2008
✓	Use of OCDB parameters in simulation (2544)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2008	30/05/2009
✓	Use of OCDB parameters in reconstruction (2545)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2008	30/05/2009
!	Implementation of online calibration procedures (2546)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Implementation of offline calibration procedures (2547)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009

- Tasks 2544 and 2545: Use of OCDB parameters in simulation and reconstruction
  - This is working since 2 year ago.
- Shuttle Task (220, 2547): preprocessor implemented for use case 1/2
  - DAs (LED, PEDESTAL, Dead Map) in the pit to be tested
  - We want to add a new DA for Pi0 calibration
    - Waiting input from Hisa (PHOS)
    - This DA could be also implemented in the HLT
  - Missing HLT part of this task
    - Mateusz to port offline calibration code or Hisa's DA to HLT
    - Need to move due date to 31/08/09

Calibration

!	***SHUTTLE*** (220)	jennifer.klay	gustavo.conesa (100%)	01/01/2006	-	31/03/2009
!	preprocessor algorithm implemented for use case 1/2 (221)	jennifer.klay	gustavo.conesa (100%)	01/01/2006	-	31/03/2009
!	***Online*** (1455)	jennifer.klay	-	25/01/2007	-	15/08/2008
!	Provide interface to time-dependent calibration corrections (2329)	jennifer.klay	jennifer.klay (100%) (+2)	04/06/2008	-	15/08/2008
✓	Use of OCDB parameters in simulation (2544)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2008	30/05/2009
✓	Use of OCDB parameters in reconstruction (2545)	jennifer.klay	jennifer.klay (100%)	16/03/2009	01/01/2008	30/05/2009
!	Implementation of online calibration procedures (2546)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009
!	Implementation of offline calibration procedures (2547)	jennifer.klay	jennifer.klay (100%)	16/03/2009	-	30/05/2009

- Online Task 1455 (2547): Time dependence online calibration interface
  - In charge David and Francesco (and Gustavo), expected new due date 31/07/09
  - Main Goal
    - Separate out "time-independent" (overall scale or gain normalization for each tower) and "time-dependent" (e.g. temperature changes) calibrations.
    - "Time-dependent" changes are expected to have a time-scale of updates of approx. once every 30 minutes (We keep 15 minute bins in the LED DA by default), while "time-independent" are expected to be updated maybe a few times per year or LHC Run.
    - To be done in preprocessor, store the found parameters in OCDB
  - Schema, working in the preprocessor:
    - Need to retrieve the LED (depending on time) and Temperature info
    - Correction is ADC_LED(t)/ADC_LED(t0) but if problem with LED, ADC(Temperature) is considered
      - Need to store in OCDB the APD Gain Temperature dependence parameters. This is yearly updated.
  - To be done
    - Place holder classes AliEMCALCalibTimeDeo already there. Need to make them do something, access to LED and T info, etc.
    - Mostly ready; DCS DP, needs to be tested
    - APD calibration and map classes, to put in the right place, put APD info in OCDB
    - APD bias voltage bias info class to store in OCDB …

Task 2546: Offline calibration

- Task: Calibration with Pi0
  - In charge Gustavo, new expected due date 31/08/09
  - Existing pi0 calibration code by Aleksei, not up to date, I need to work on it.
  - We have already different discussions on the subject with Cvetan, Chiara etc.
- Task: other calibrations, need to be explored for the next years if not possible now, need manpower.
  - Electrons
  - MIPs