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# Tracking and Alignment Activities List

This page is listing the activities taken on by the tracking and alignment group. It is a placeholder to help the tracking convener to follow-up on the status of each study.

If you wish to contribute look for the page with the Open Tasks.

## Ongoing

### Tracking

#### Momentum Error Calibration

Description	The error on track momentum is calibrated using $J/\psi$ and $\mu^+\mu^-$
People/groups currently involved	Christian Voss (Rostock)
Started on	1/4/2012
Deadline	31/3/2013
Status	2011 data-Reco12 deployed, 2012 data-Reco14 almost finished
Talks	19/4/2012 <a href="#">↗</a> 4/10/2012 <a href="#">↗</a> 22/10/2012 (A&SW) <a href="#">↗</a> 6/12/2012 <a href="#">↗</a> 20/12/2012 <a href="#">↗</a> 11/04/2013 <a href="#">↗</a> 15/04/2013 (A&SW, tracking report) <a href="#">↗</a> 17/04/2013 (A&SW, tutorial) <a href="#">↗</a>
Other comments	Can be used in the momentum calibration tool

#### Momentum Calibration

Description	The momentum scale is corrected by mean of a calibration using kaon tracks from $B^+$ , $J/\psi$ , $K^+$
People/groups currently involved	Matthew Needham (Edinburgh)
Started on	1/1/2012
Deadline	31/3/2013
Status	Completed 2011 Reco12, 2012 Reco14. well advanced: 2011 Reco14
Talks	2/8/2012 <a href="#">↗</a> 9/10/2012 <a href="#">↗</a> 04/04/2013 <a href="#">↗</a> 11/04/2013 <a href="#">↗</a> 15/04/2013 (A&SW, tracking report) <a href="#">↗</a> 17/04/2013 (A&SW, tutorial) <a href="#">↗</a>
Other comments	Can be used in the momentum calibration tool

#### Tracking Asymmetries in Minimum Bias Events

Description	Study the Minimum Bias events searching for tracking asymmetries.
People/groups currently involved	Patrick Koppenburg (Nikhef)
Started on	7/3/2013
Deadline	31/12/2013
Status	Advanced.
Talks	7/3/2013 <a href="#">↗</a> 4/4/2013 <a href="#">↗</a> 2/5/2013 <a href="#">↗</a>
Other comments	Charge asymmetry observed in minimum bias data. Effect largely reduced to <1% once applying PID requirements.

**Contribution of TT to  $\chi^2$** 

Description	Studies on the track fit
People/groups currently involved	Wouter Hulsbergen (Nikhef), Paul Seyfert (Heidelberg), Adam Davis (Cincinnati)
Started on	1/7/2012
Deadline	31/12/2013
Status	Ongoing
Talks	7/6/2012 <a href="#">↗</a> 12/7/2012 <a href="#">↗</a> 5/12/2013 <a href="#">↗</a>
Other comments	Problem shown, but not completely understood. May affect Alignment.

**Energy Loss Correction in MC12**

Description	Study the momentum pull to extract the optimal energy loss correction in MC12.
People/groups currently involved	Miriam Hess, Christian Voss (Rostock), Maurizio Martinelli (Nikhef)
Started on	1/2/2013
Deadline	1/6/2014
Status	Advanced. Found a difference in MS treatment between GEANT and TrackFit
Talks	7/2/2013 <a href="#">↗</a> 13/6/2013 <a href="#">↗</a> 5/12/2013 <a href="#">↗</a> 3/4/2014 <a href="#">↗</a>
Other comments	

**Beam Angles and Tracks Distribution**

Description	The beam angle affects the distribution of tracks in
People/groups currently involved	Markward Britsch (MPI Heidelberg), Ronan Wallace (UC Dublin), Burkhard Schmidt (CERN), Mika Vesterinen (Uni Heidelberg)
Started on	1/1/2013
Deadline	31/12/2013
Status	Understood
Talks	4/4/2013 <a href="#">↗</a> 13/6/2013 (D0 KSKS) <a href="#">↗</a> 23/1/2014 (Z production) <a href="#">↗</a> 23/1/2014 (effective angles) <a href="#">↗</a>
Other comments	Observed in the D0 KSKS and Z production analysis. A note is in development and will be added soon.

**Alignment****Alignment for 2010 data**

Description	Align the detector for calibrating 2010 data.
People/groups currently involved	Maurizio Martinelli (Nikhef), Silvia Borghi (Manchester)
Started on	1/10/2013
Deadline	1/12/2013
Status	Looking for input samples
Talks	
Other comments	

**Alignment changes with magnet polarity**

Description	Align the detector for different polarities and detailed study of the alignment.
People/groups currently involved	Varvara Batozskaya, Konrad Klimaszewski (Warsaw)
Started on	1/10/2013
Deadline	1/6/2014
Status	Getting acquainted with alignment software
Talks	5/12/2013 <a href="#">↗</a> 23/1/2014 <a href="#">↗</a> 20/02/2014 <a href="#">↗</a> 20/03/2014 <a href="#">↗</a> 24/04/2014 <a href="#">↗</a> 15/05/2014 <a href="#">↗</a> 26/6/2014 <a href="#">↗</a> 23/10/2014 <a href="#">↗</a> 11/12/2014 <a href="#">↗</a>
Other comments	

**Velo Alignment**

Description	Improve alignment of the Velo.
People/groups currently involved	Dermot Moran, Christoph Hombach, Silvia Borghi (Manchester)
Started on	1/1/2013
Deadline	1/6/2014
Status	Preliminar studies. Looking what should be fixed and how to do that.
Talks	7/2/2013 <a href="#">↗</a> 5/12/2013 <a href="#">↗</a>
Other comments	Silvia is on leave, but is available to help Dermot and Christoph who are in the mean time responsible.

**Monitoring Alignment Database**

Description	Create a monitor for the alignment from a database point of view.
People/groups currently involved	Jason Emory Andrews (Maryland)
Started on	1/1/2013
Deadline	1/6/2014
Status	Tool in place. Awaiting documentation
Talks	14/2/2013 <a href="#">↗</a> 11/4/2013 <a href="#">↗</a> 24/10/2013 <a href="#">↗</a> 5/12/2013 <a href="#">↗</a>
Other comments	This task is targeting to having a monitoring that could run online after LS1.

**Monitoring Mass Plots**

Description	Create a monitor for the alignment from a mass resonances point of view.
People/groups currently involved	Jack Timpson Wimberley (Maryland)
Started on	1/1/2013
Deadline	1/6/2014
Status	Tool is getting shape.
Talks	14/2/2013 <a href="#">↗</a> 11/4/2013 <a href="#">↗</a> 25/4/2013 <a href="#">↗</a> 24/10/2013 <a href="#">↗</a> 5/12/2013 <a href="#">↗</a> 9/1/2014 <a href="#">↗</a>
Other comments	This task is targeting to having a monitoring that could run online after LS1.

**OT Mono-Layer Alignment**

Description	Alignment of the OT mono-layer.
People/groups currently involved	Lucia Grillo (Heidelberg), Francesco Dettori (Nikhef)
Started on	1/1/2013
Deadline	1/6/2014
Status	Alignment presented. Awaiting documentation.

Talks	<a href="#">2/5/2013</a>
Other comments	This tool aligns the OT mono layers.

### Tracker Efficiency for Online Monitoring

Description	Study the Silicon trackers reconstruction efficiency to spot problems online.
People/groups currently involved	Frederic Dupertuis, Ila Komarov (EPFL)
Started on	1/1/2013
Deadline	1/6/2014
Status	Tool in place. Need to choose the best input.
Talks	<a href="#">2/5/2013</a>
Other comments	This tool can be used Online to monitor the Silicon tracking stations.

## Completed

### Tracking

#### Tracking Efficiency for 2012

Description	Tracking efficiency for Long tracks is evaluated comparing Data and MC samples.
People/groups currently involved	Paul Seyfert, Michel de Cian, Andreas Jaeger (Heidelberg)
Started on	1/1/2013
Deadline	30/6/2013
Status	Completed
Talks	<a href="#">11/04/2013</a>
Other comments	Done.

#### Refitting Tracks in uDST

Description	A Tool to refit tracks from particles stored in uDST
People/groups currently involved	Paul Seyfert (Heidelberg)
Started on	11/10/2012
Deadline	31/3/2013
Status	Completed
Talks	<a href="#">11/10/2012</a>
Other comments	DaVinci with all necessary fixes released. user code in <code>Phys/DaVinciTrackRefitting/options/candidate_track_refitting_example.py</code>

#### KS Reconstruction

Description	Many people studied the KS reconstruction
People/groups currently involved	Wouter Hulsbergen (Nikhef), Paul Seyfert (Heidelberg)
Started on	1/7/2012
Completed	31/12/2012
Status	Understood
Talks	Wouter: <a href="#">12/7/2012</a> Fix <a href="#">1/11/2012</a> Paul: <a href="#">2/8/2012</a> <a href="#">9/8/2012</a>
Other comments	Completed, fix implemented in DaVinci, works for DTF only though.

## Alignment

### Alignment for 2013 data

Description	Align the detector for calibrate 2013 data.
People/groups currently involved	Maurizio Martinelli (Nikhef)
Started on	1/2/2013
Deadline	10/3/2013
Status	Alignment done and validated
Talks	

| Other comments | Tracker alignment is done. No need to update Velo alignment. |

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This topic: LHCb > TrackingActivitiesList

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