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# Open tracking and alignment tasks

These tasks are part of the LS1 tasks list. If you interested in any of these tasks please contact Silvia Borghi, Michel De Cian and Patrick Koppenburg.

They are split in three depending if they are available, taken or completed. The completed tasks are still there because the analysis is made for 2011 and 2012 data. Anyway, further effort is needed for the post-LS1 data-taking, especially for documenting the analysis and organizing it into a package that could be run almost automatically for the next round of data-taking.

## High Priority

### Maintain tracking and alignment monitoring plots (can be shared among people working on monitoring)

Task name	Maintain tracking and alignment monitoring plots
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Tracking and alignment plots for DQ need to be maintained and cleaned-up. New plots need to be added. Update documentation and answer to the DQ offline piquet issues.
Estimated total effort required (FTE)	0.5 FTE for 4 months and after that 0.2 months for maintenance.
Deadline	Continuous.
People/groups currently involved	nobody
Past studies from	Wouter Hulsbergen.
New effort required?	Yes.
Other comments	This is an ideal task for a student which wants to get involved and understand the tracking and alignment. Part of it should be integrated into an automatic comparison framework (P&R) such that changes in the tracking can be spotted early.

### Document state of 2015 tracking

Task name	Document state of 2015 tracking
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Document state of 2015 tracking.
Estimated total effort required (FTE)	0.2 FTE for 4 months by several people
Deadline	As soon as 2015 tracking is frozen, all major changes implemented
People/groups currently involved	Everybody who contributed to the 2015 tracking.
Past studies from	
New effort required?	No, everybody who worked on it has to document it.
Other comments	Will be made into a public note.

### Investigate problems in track fit

Task name	Investigate problems in track fit
Lead (tools, or other) group	Tracking and alignment

Other relevant groups (if any)	Everybody
Task description	Pulls and chi2 from track fit are not perfect. Especially the TT region looks bad. Already seen in MC.
Estimated total effort required (FTE)	0.4 FTE for 4 months.
Deadline	before 2014 reprocessing.
People/groups currently involved	Adam Davis.
Past studies from	Wouter Hulsbergen.
New effort required?	Yes. Adam will continue this works, but more manpower is needed.
Other comments	

## Improve MC association tool

Task name	Improve MC association tool
Lead (tools, or other) group	Simulation, Software, Tracking and alignment, Upgrade
Other relevant groups (if any)	Everybody
Task description	The MC association tool is untouched from before the start of data-taking and started to show a few limitations. Work is needed for maintaining it. Idea is to improve such that signal is not categorized as ghosts and vice versa.
Estimated total effort required (FTE)	0.5 FTE for 4 months.
Deadline	Expect results beginning of summer (June)
People/groups currently involved	Diego Milanes
New effort required?	No
Other comments	PK: Relevant for upgrade studies. Needs somebody with some computing knowledge.

## Available

### V0 from Brunel and DaVinci

Task name	V0 from Brunel and DaVinci
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody using Ks
Task description	V0 (Ks, Lambda, ...) are made in Brunel and in DaVinci. At the moment, only the ones made in DaVinci are used, although in principle taking the ones from Brunel should have a better performance. The goal is to investigate the difference and potentially improve V0 reconstruction.
Estimated total effort required (FTE)	0.5 FTE for 3 months.
Deadline	Before the 2016
People/groups currently involved	Nobody
Past studies from	Patrick Koppenburg, Wouter Hulsbergen
New effort required?	Yes.
Other comments	...

## Do all the 2015 tracking improvements also run and improve the tracking for Run I data

Task name	Check RunII track reconstruction on RunI data
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody using reprocessed data
Task description	If the RunI data is ever going to be reprocessed, do all the improvements for RunII also work for RunI and also improve the tracking?
Estimated total effort required (FTE)	0.5 FTE for 3 months.
Deadline	Before the (potential) reprocessing
People/groups currently involved	Nobody
Past studies from	All RunII tracking studies
New effort required?	Yes.
Other comments	...

## Determine tracking efficiency and material budget using kinematically constraint decays

Task name	Determine tracking efficiency and material budget using kinematically constraint decays
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody who uses hadrons
Task description	Reduce uncertainty on material budget using kinematically constraint decays, crosscheck with other methods for tracking efficiency.
Estimated total effort required (FTE)	0.5 FTE for 6 months.
Deadline	As soon as somebody needs it
People/groups currently involved	Mika Vesterinen
Past studies from	Mika Vesterinen
New effort required?	Yes.
Other comments	Nice project for a student to get into tracking.

## Develop monitoring to measure the tracking efficiency online, to be used in the pit to check

Task name	Develop monitoring to measure the tracking efficiency online
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody who likes tracks
Task description	The tracking efficiency can now be measured in the trigger. It should be possible to develop an online monitoring, with an efficiency measurement directly out of the trigger
Estimated total effort required (FTE)	0.5 FTE for 3 months.

Deadline	summer 2015
People/groups currently involved	Michael Kolpin (for track eff measurement)
Past studies from	nobody directly
New effort required?	Yes.
Other comments	Nice project for a student to get into tracking.

## Investigate problems in vertex fitting and intervalation of different fitters

Task name	Investigate problems in vertex fitting and intervalation of different fitters
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	OfflineVertex fitter sometimes produces unphysical cov matrices (see <a href="https://savannah.cern.ch/bugs/?94917">https://savannah.cern.ch/bugs/?94917</a> ). Mass constraints in DTF sometimes fail (see <a href="https://savannah.cern.ch/bugs/?90439">https://savannah.cern.ch/bugs/?90439</a> ). LokiVertexFitter and OfflineVertexFitter give different results (see <a href="https://savannah.cern.ch/bugs/?84606">https://savannah.cern.ch/bugs/?84606</a> ).
Estimated total effort required (FTE)	0.2 FTE for 6 months.
Deadline	Before 2013 reprocessing.
People/groups currently involved	Wouter Hulsbergen, Vanya Belyaev, Yuehong Xie
Past studies from	Wouter Hulsbergen, Vanya Belyaev, Yuehong Xie
New effort required?	Yes.
Other comments	

## Implement SIMDChi2 fits in pattern recognition

Task name	Implement SIMDChi2 fits in pattern recognition
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	
Task description	Manuel developed a framework to unify all chi2-fits in the pattern recognition, which is vectorisable. This should be implemented in all algorithms
Estimated total effort required (FTE)	0.5 FTE for 1 month.
Deadline	Middle of 2015
People/groups currently involved	Manuel Schiller
Past studies from	Manuel Schiller
New effort required?	Yes.
Other comments	Small, technical project.

## VELO to T matching

Task name	VELO to T matching
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody

Task description	Investigate the biases in the matching of Velo-TT to T matching
Estimated total effort required (FTE)	0.2 FTE for several months
Deadline	before end of LS1
People/groups currently involved	
New effort required?	Yes.
Other comments	Important task for improving mass resolution. Ideal for people involved in the VELO and/or TT.

## Stability of IT/OT alignment

Task name	Stability of IT/OT alignment
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Stability of IT/OT alignment (short time scales (incl. Rasnik) and long time scales)
Estimated total effort required (FTE)	0.2 FTE for several months
Deadline	before end of LS1
People/groups currently involved	
New effort required?	Yes.
Other comments	This task is interconnected with IT-OT responsibilities.

## A Kink Finder

Task name	Develop a kink finder with the actual detector
Task description	Develop and implement a method that finds kink in trajectories to veto decay in flight
Deadline	Nice to have, no real deadline
Past studies from	Francesco Dettori
People/groups currently involved	Nobody
New effort required	Yes. Francesco is happy to help, but does not have time himself
Status	A TupleTool was written that provides this information. Some more development could lead to using this information in a ProbNN variable
Talks	4/4/2013 <a href="#">↗</a>
Other comments	Two techniques exploited. Problem with misid in data events.

## Develop monitoring and checker tools for upgrade

Task name	Develop monitoring tools for upgrade
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Only little monitoring and checker tools to understand all the performance numbers of the upgrade tracking. This has to be implemented until some time before startup
Estimated total effort required (FTE)	0.2 FTE by several people for two years
Deadline	Some time before upgrade (2018), some are needed earlier

People/groups currently involved	nobody
Past studies from	nobody
New effort required?	Yes.
Other comments	People who are involved in the upgrade detectors are ideal candidates.

## Review tracking strategy for the upgrade

Task name	Review tracking strategy for the upgrade
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	The tracking strategy for the upgrade is largely identical to the one for current LHCb. It should be checked if other strategies / changes to the default detector configuration would be beneficial.
Estimated total effort required (FTE)	0.5 FTE by several people for one year
Deadline	End of 2015
People/groups currently involved	nobody directly
Past studies from	nobody
New effort required?	Yes.
Other comments	People who are involved in the upgrade detectors are ideal candidates.

## Study interplay between and UT for downstream tracking.

Task name	Study interplay between SciFi and UT for downstream tracking.
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	The downstream tracking does not seem to perform so well for the upgrade. A review of the best stereo angles of the SciFi in combination with the UT should be done.
Estimated total effort required (FTE)	0.5 FTE for 4 months
Deadline	End of 2015
People/groups currently involved	nobody directly
Past studies from	nobody
New effort required?	Yes.
Other comments	Depends on having different DB with a set of stereo angles for SciFi and UT

## Contribution of TT to chi2

Task name	Contribution of TT to chi2
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task Description	Understand the effect of TT on the overall track chi2
Deadline	

People/groups currently involved	Wouter Hulsbergen (Nikhef), Paul Seyfert (Heidelberg), Adam Davis (Cincinnati)
Past studies from	?
New effort required	??
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.

## Taken

The following tasks have been taken. Contribution is always welcome, but it's better to focus on the ones still free.

### HLT Reconstruction review : Track Reconstruction Performance and sequence (in progress)

Task name	Review HLT track reconstruction performance and sequence
Lead (tools, or other) group	Trigger & Tracking and alignment
Other relevant groups (if any)	tracking
Task name	HLT Reconstruction review
Task description	The reconstruction sequence in the trigger needs to be revisited and the track-by-track performance compared to offline is to be evaluated. The sequence is to be retuned according to the CPU budget available for 14TeV running and possible algorithm improvements are to be identified. The possibility of using HLT tracks to seed the offline reconstruction should be studied.
Estimated total effort required (FTE)	0.5
Deadline	spring 2015
People/groups currently involved	Sascha Stahl
New effort required?	No. Contributions from other people might influence this.

### Optimization of the track fit in HLT and inclusion of Ghost Probability (in progress)

Task name	Review HLT track fit and ghost prob
Lead (tools, or other) group	Trigger & Tracking and alignment
Other relevant groups (if any)	Tracking
Task name	Optimization of the track fir in HLT and inclusion of Ghost Probability
Task description	The track fit needs to be re-optimized for the HLT, minimizing the offline-online differences. Also, it should be reviewed if the ghost probability can be included in the HLT.
Estimated total effort required (FTE)	0.5
Deadline	Spring 2015
	Gerhard Raven, Tomasz Szumlak (fit) & Paul Seyfert (ghost probability)

People/groups currently involved	
New effort required?	no

## Review of HLT PV reconstruction (in progress)

Task name	Review HLT PV reconstruction
Lead (tools, or other) group	Trigger
Other relevant groups (if any)	tracking
Task name	Review of HLT PV reconstruction
Task description	The online and offline PV reconstructions differ in certain important respects, most notably in the fact that online PVs are made before a proper covariance matrix of the tracks is available. This leads to an incorrect covariance matrix for the PV and consequently to a loss of resolution in certain key selection variables such as the IPCHI2 of particles. In addition, the online and offline PV reconstructions often do not find the same number of PVs in multiple-PV events. The online PV reconstruction needs to be reviewed before 2015 and brought closer to the offline reconstruction wherever possible.
Estimated total effort required (FTE)	0.5 FTE for 3 months
Deadline	spring 2015
People/groups currently involved	Mariusz Witek, Agnieszka Dziurda
New effort required?	No

## Magnetic field studies (in progress)

Task name	Magnetic field studies
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Determine the magnetic field parameters and correct/adapt the currently existing field map
Estimated total effort required (FTE)	0.5 FTE for 6 months.
Deadline	as soon as possible
People/groups currently involved	Maxime Schubiger, Maurizio Martinelli
Past studies from	Jessica Prisciandaro, Fred Blanc, ...
New effort required?	no
Other comments	

## Prepare for 25 ns (in progress)

Task name	Prepare for 25 ns
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Track reconstruction needs to be tested with spillover. Run simulations. Estimate ghost rate (from spillover) and try to reduce it.

## TrackingTaskList &lt; LHCb &lt; TWiki

Estimated total effort required (FTE)	0.5 FTE for 12 months.
Deadline	Summer 2014
People/groups currently involved	Sascha, Marian, Manuel, Michel, Vincenzo, ...
Past studies from	Jeroen Van Tilburg.
New effort required?	If there are new ideas, yes
Other comments	Work in collaboration with detector experts

**Harmonisation of offline / online tracking (in progress)**

Task name	Harmonisation of offline and online tracking
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	To maximise the overlap between online and offline tracking, both trackings have to be as similar as possible or the same. It has to be studied what the best solution is. 2015+ running can partly be used for testing the scenario in the upgrade.
Estimated total effort required (FTE)	0.3 FTE for 6 months
Deadline	End of 2015
People/groups currently involved	Sascha Stahl, ...
Past studies from	Sascha Stahl, Espen Bowen
New effort required?	Not urgently, but comparison studies have to be done with real (2015) data.
Other comments	Many people involved in the discussion, need to know how the physics behaves when using online / offline tracks.

**Cross-talk for IT / TT (in progress)**

Task name	Prepare for 25 ns
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	
Task description	Understand effect of crosstalk in 25ns for tracking performance
Estimated total effort required (FTE)	0.5 FTE for 12 months.
Deadline	Summer 2014
People/groups currently involved	IT: Vincenzo + Maurizio, TT: Elena + Barbara
Past studies from	??
New effort required?	??
Other comments	

**Improve downstream tracking (in progress)**

Task name	Improve downstream tracking
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	People who need KS, Lambda, ...
Task description	Current downstream tracking has low efficiency and high ghost rate. Should improve on both.
Estimated total effort required (FTE)	0.5 FTE for 4 months.

Deadline	Middle of 2015
People/groups currently involved	Michel De Cian
Past studies from	Olivier Callot, Sascha Stahl
New effort required?	yes
Other comments	Could be worth rethinking central parts of the algorithm and study it in detail.

### Reduce ghosts in forward tracking (taken)

Task name	Reduce ghosts in forward tracking
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	For the high occupancy events the forward tracking is producing too many ghosts. This can be reduced (e.g. by tightening the windows).
Estimated total effort required (FTE)	0.5 FTE for 4 months.
Deadline	before start of 2015 data taking.
People/groups currently involved	Marian Stahl, Sascha Stahl
Past studies from	Sascha Stahl, Stephanie Hansmann-Menzemer
New effort required?	No
Other comments	

### Tuning and retuning of ghost probability (taken)

Task name	Tuning and retuning of ghost probability
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Only the long tracks are retuned now. Also this thing needs to be retuned regularly.
Estimated total effort required (FTE)	0.5 FTE for 2 months
Deadline	before start of 2015 data taking
People/groups currently involved	Paul Seyfert
Past studies from	Johannes Albrecht, Paul Seyfert.
New effort required?	No
Other comments	Goal is to put in the HLT when the faster version is performing enough

### Investigate tracking asymmetries (taken)

Task name	Investigate tracking asymmetries
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Tracking asymmetries that do not cancel between magnet up and down are observed in the detector both at low and high momentum. This affects reconstruction of massive objects (i.e. $W^+$ ) or slow particles in Charm and B decays.

Estimated total effort required (FTE)	1.0 FTE for 1 year.
Deadline	before 2014 reprocessing.
People/groups currently involved	Pietro Marino, Laurent Dufour
Past studies from	Patrick Koppenburg.
New effort required?	Depends on the outcome of the current studies
Other comments	Large topic where many inputs from physics working groups are very welcome.

### Tracking efficiency for downstream tracks (taken)

Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody that uses long-lived particles
Task name	Tracking efficiency for downstream tracks
Task description	Develop methods to measure the downstream tracking efficiency.
Estimated total effort required (FTE)	1.0 FTE for 6 months and then 0.2 FTE for maintenance and updates
Deadline	Urgent for 2012 data
People/groups currently involved	Nobody ?
Past studies from	Eluned Smith, Patrick Owen, Bogdan Popovici
New effort required?	Probably
Other comments	Studies have been performed, but many points still not understood.

### Tune energy loss and multiple scattering in MC (taken)

Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task name	Tune energy loss and multiple scattering in MC
Task description	Energy loss and multiple scattering not well modeled in MC. Requires tuning when reconstruction MC, or fix problem in Geant.
Deadline	before start of 2015 data taking
People/groups currently involved	Miriam Hess, Christian Voss.
Past studies from	Jeroen van Tilburg, Maurizio Martinelli
New effort required?	No
Other comments	Studies have been performed, but certain things still need to be understood.
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>

### Alignment on the GRID

Task name	Alignment on the GRID
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Make the alignment available as a GRID job.
Deadline	Before end of LS1.
People/groups currently involved	Giulio Dujany
Past studies from	Maurizio Martinelli
New effort required?	No.
Other comments	

## Automatic procedure for Alignment

Task name	Automatic procedure for Alignment
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Automation of alignment, to be evaluated per fill during data-taking
Deadline	Before end of LS1.
People/groups currently involved	
Past studies from	Roel Aaij, Varvara Batozskaya, Silvia Borghi, Giulio Dujany, Wouter Hulsbergen, Beat Jost, Maurizio Martinelli, Stefania Vecchi
New effort required?	No.
Other comments	Procedure implemented, testing ongoing. Definition on criteria to update the constants is under study

## Reorganization of Alignment DB Monitoring Tools (taken)

Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task name	Reorganization of Alignment DB Monitoring Tools
Task description	Alignment has many monitoring tools developed in the past, but they are not well organized. This task would make easier to spot problems and is crucial if we want to move Alignment automation.
Deadline	before end of LS1
People/groups currently involved	Jason Emory Andrews, Pieter David
Past studies from	Maurizio Martinelli
New effort required?	No.
Other comments	Final testing and tuning is needed

## Stability of the Mass position and resolution (taken)

Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task name	Stability of the mass position and resolution
Task description	Study of the stability of the mass position and their resolution versus time to monitor the quality and stability of the alignment.
Deadline	Before end of LS1
People/groups currently involved	Jack Timpson Wimberley
Past studies from	Maurizio Martinelli
New effort required?	No.
Other comments	This is related to the momentum scale calibration, but the focus here is on obtaining a more stable alignment and understanding the alignment, rather than calibrating the detector a posteriori.

**Movements when changing field (up/down/off) (taken)**

Task name	Movements when changing field (up/down/off)
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Investigate the movements of T stations and consequently variation of the alignment when changing field (up/down/off)
Deadline	before end of LS1
People/groups currently involved	Varvara Batozskaya, Konrad Klimaszewski
New effort required?	No.
Other comments	Important task for the understanding of the alignment. If solved the mass resolution will improve significantly.

**z-scaling problem (taken)**

Task name	z scaling problem
Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task description	Investigate the z-scaling observed in TT and IT comparing the position obtained running the alignment and the survey.
Deadline	before end of LS1
People/groups currently involved	Elena Graverini, Barbara Storaci
New effort required?	No.
Other comments	

# Completed

The following tasks have been already completed. Further effort is still needed for creating a package to automatize as much as possible the task and document it. Fully documented tasks will not appear in this list (in the future)

## Calibration of momentum scale (completed)

Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	BandQ and everybody else
Task name	Calibration of momentum scale
Task description	Calibrate momentum scale using several resonances and implement DaVinci tools to apply calibration (including database). Also the error on the momentum could be calibrated. Further, a calibration as a function of the momentum is needed to disentangle energy loss and multiple scattering. Study the mass bias as function of the momentum (or other relevant variables like track slopes), both in data and in MC.
Estimated total effort required (FTE)	0.8 FTE for 4 months and after that 0.2 months for maintenance.
Deadline	for 2012 physics analysis
People/groups currently involved	Matt Needham, Jibo He, Christian Voss.
New effort required?	Yes. This is a good task for a student working on mass measurements (with proper supervision)
Other comments	High priority

## Tracking efficiency for long tracks (completed)

Lead (tools, or other) group	Tracking and alignment
Other relevant groups (if any)	Everybody
Task name	Tracking efficiency for long tracks
Task description	Keep tracking efficiency lines up-to-date. Determine the efficiency after the stripping.
Estimated total effort required (FTE)	0.2 FTE for 12 months; 0.5 FTE for 2015
Deadline	Urgent for 2012 data, then for the restart of 2015 data taking
People/groups currently involved	Michel de Cian, Paul Seyfert, Andreas Jaeger
New effort required?	Yes, all these people moved to physics analyses. Maybe some manpower from Heidelberg can be allocated (uncertain for now).
Other comments	High priority.

## Bug in (completed)

Description	Studies on the TrackExtrapolator show that Geant4 sees different detector volumes than the extrapolator.
People/groups currently involved	Wouter Hulsbergen (Nikhef), Vanya Belyaev (ITEP), Miriam Hess (Rostock)

Status	Problem understood, but not really fixable. Call it closed for now.
Talks	20/12/2012 <a href="#">↗</a>

## Beam Angles and Tracks Distribution (completed)

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 and completed. What happened to the note?
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.

This topic: LHCb > TrackingTaskList

Topic revision: r39 - 2015-10-07 - MichelDeCian



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