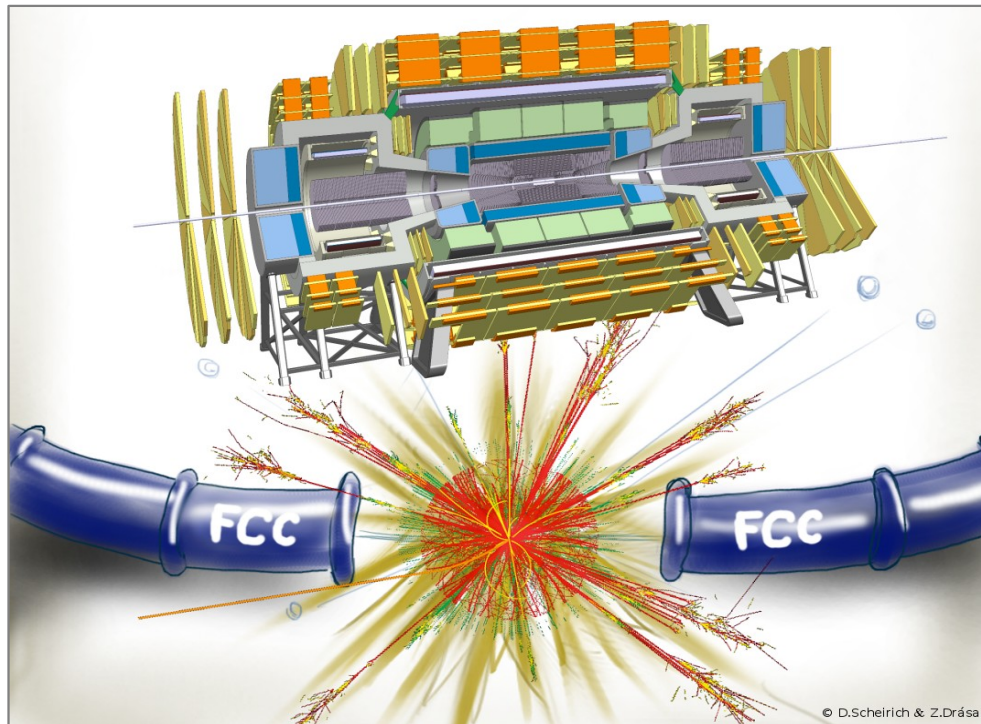


# FCC-hh CDR: Status of Tracker Chapter



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# Progress since November 21st

- **Tracker/Vertex Detector chapter moved to Overleaf – all the content is in!**
  - added technical documentation to chapter appendix (+ 6 pages)  
meant as a complementary content to: <http://fcc-tklayout.web.cern.ch/fcc-tklayout/>
  - corrected bibliography – according to **inSPIRE** database (or **CERN CDS** if missing)
  - corrected section on Track filtering & Tilted layout
  - corrected formatting & references to other chapters/sections
  - corrected pT plot figure in Occupancy section (by Julia Hrdinka)
  - **FINAL content: 43 pages + 6 pages (technical specification)**

# Status – ALL THE CONTENT IN!

EP – E. Perez, JH – J. Hrdinka, VV – V. Volkl, WF – W. Fawcett, ZD – Z. Drasal (editor)

<b>6</b>	<b>Tracker and Vertex Detector</b>	<b>25</b>	
6.1	Overview and General Challenges . . . . .	25	ZD ✓
6.2	Mathematical Approaches and SW Tools . . . . .	28	ZD ✓
6.2.1	Analytical, Approximative and Numerical Approaches . . . . .	28	ZD ✓
6.2.2	CLIC Software Framework . . . . .	28	EP ✓
6.2.3	FCC Software Framework . . . . .	29	JH & ZD ✓
6.3	Reference Layout and Track Parameters Resolution . . . . .	30	ZD ✓
6.3.1	Hermeticity and Number of Measurement Layers/Discs . . . . .	31	ZD ✓
6.3.2	Granularity . . . . .	32	ZD ✓
6.3.3	Material Budget . . . . .	35	ZD ✓
6.3.4	Track Parameters Resolution . . . . .	35	ZD ✓
6.3.5	Effects of Non-uniform Magnetic Field, Dipole Alternative . . . . .	39	ZD ✓
6.4	Expected Performance: Vertexing, Tracking and Flavour Tagging . . . . .	42	ZD ✓
6.4.1	Progressive Track Filtering in Pile-up and Tilted Layout . . . . .	42	ZD ✓ + rev.
6.4.2	Tracking Efficiency in Boosted Objects . . . . .	46	EP ✓
6.4.3	Vertexing and Pile-up Mitigation by Extra Timing Information . . . . .	52	ZD & VV ✓
6.4.4	Flavour Tagging Performance . . . . .	54	EP ✓
6.5	Triggering, Occupancy and Data rates . . . . .	59	ZD ✓ + rev.
6.5.1	Track Trigger . . . . .	59	WF ✓ + rev.
6.5.2	Expected Occupancy and Data Rates . . . . .	63	JH & ZD ✓ + rev.
6.A	Technical Specification of Tracker Layout . . . . .	68	ZD ✓ + rev.

# TODO List

- **A few remaining tasks to be done:**

- written as \todo directly to Introductory section of the CDR Tracker chapter
- mostly related to the content of other chapters or review related

**TODO:**

- \* Update reference to the summary table with all physics/collider/detector parameters, similar to one used in the CDR Summary Report (see ref command to TABWITHALLPARAMSTOREF and to the corresponding chapter)
- \* Update reference to the detector overall layout figure (see ref command to DETLAYOUTFIG-TOTREF and to the corresponding chapter)
- \* Check reference to the physics studies in the 1st paragraph of Flavour Tagging section
- \* Update citation of Valentin's work: conf. paper will be used instead -> waiting for approval
- \* Update citation of Julia's work: PhD thesis will be used instead
- \* Update citation of Zbynek's math note -> waiting for review, note will be published then as an FCC PUB note
- \* Review of TrkPerformPatternReco.tex - text describing the tilted layout optimization procedure
- \* Review of Trigger, Data rates and Occupancy section
- \* Make chapter conclusions, if chapters will be supposed to have a conclusion
- \* Make wider collaboration reading

# Before I say Good-bye!

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FINAL.doc!



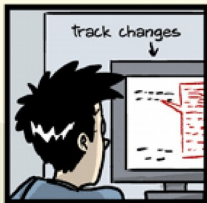
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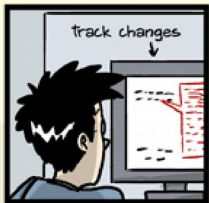
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Thank you very much for the wonderful  
collaborative work  
and  
let me wish you all the best!