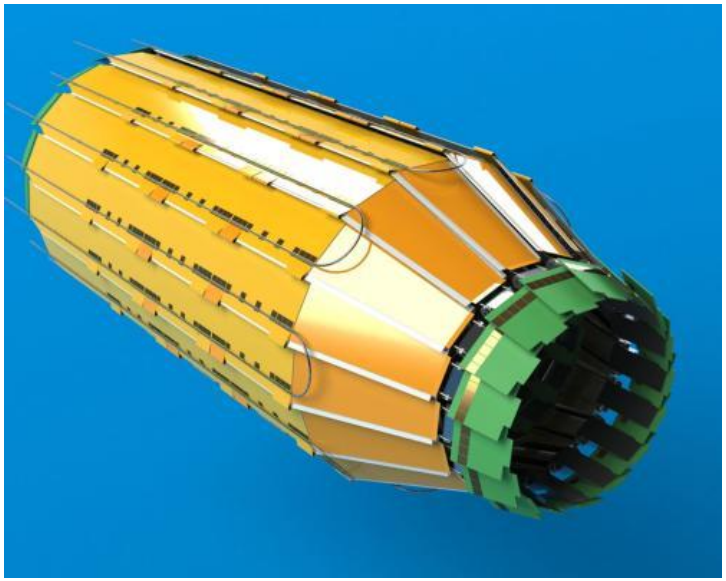
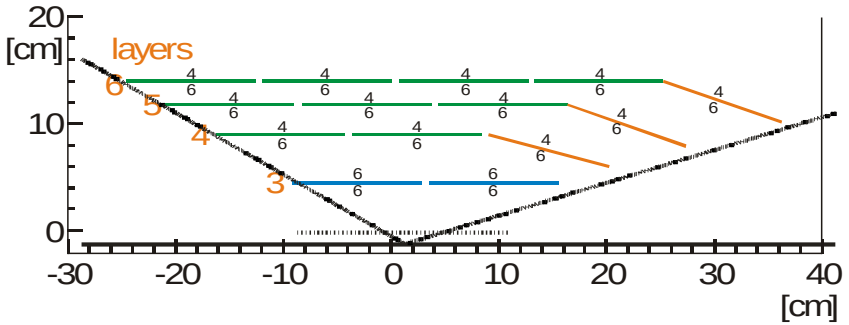


SVD Construction Database

Thomas Bergauer (HEPHY Vienna)

SVD Layout

- SVD consists of
  - ~2000 readout chips
  - ~200 sensors
  - ~50 ladders
- We want to
  - trace all components
  - Store measurement results
- Too large to handle with Excel-sheets
- Database proposed to handle this



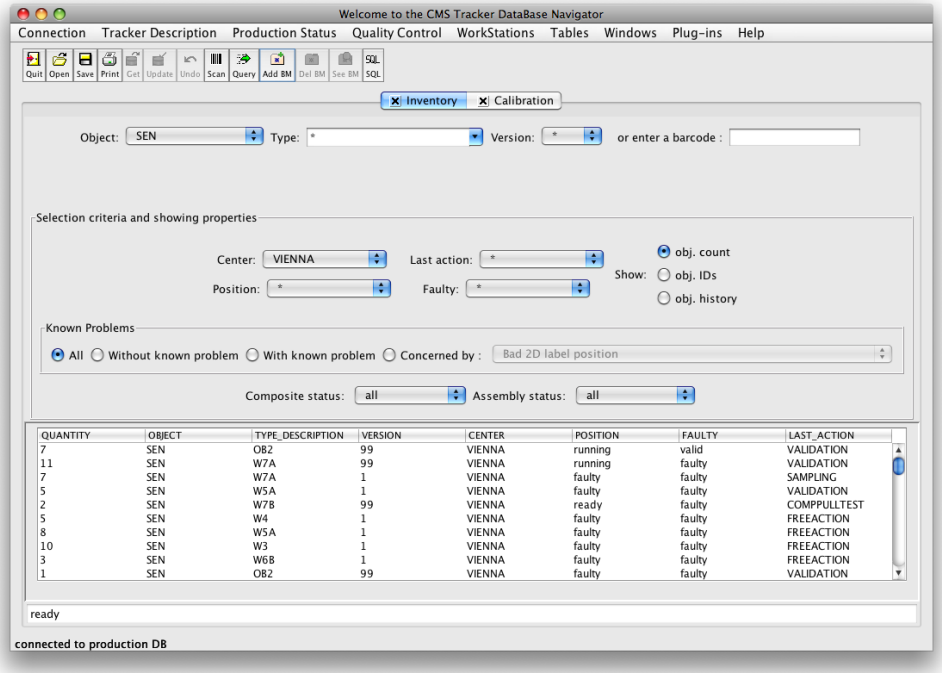
Layer	# Ladders	Rect. Sensors [50µm]	Rect. Sensors [75µm]	Wedge Sensors
6	17	0	68	17
5	14	0	42	14
4	10	0	20	10
3	8	16	0	0
Sum:	**49**	**16**	**130**	**41**

CMS Tracker Construction Database

Contains:

- **Registration:** scan barcode and enter basic sensor information
- **Inventory handling:** which objects are where?
- **Transfers:** shipments from one institute to another
- Measurement results
  - Own and vendor measurements
- Good/bad/broken handling

- **Assembly:** which sensor is on which module
- **Cabling scheme:** which module is on which DAQ channel via which cable



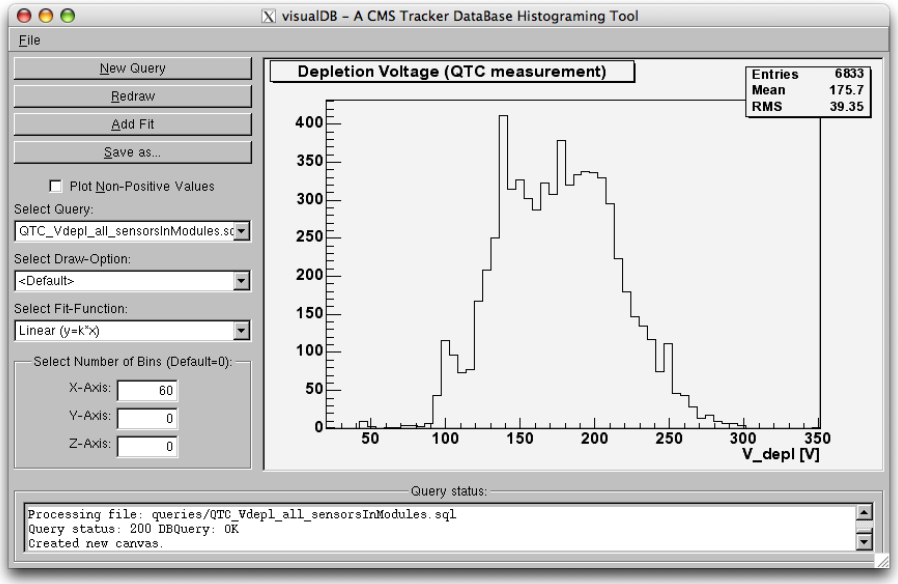
CMS used local Java program interfacing to central Oracle DB

Belle-II: Web interface with mySQL

CMS Data Insertion/Extraction

Data insertion:

- Measurement results had to be stored as XML files
  - Uploaded via BigBrowser (Java Program)
- Assembly via Java GUI (or similar XML files)

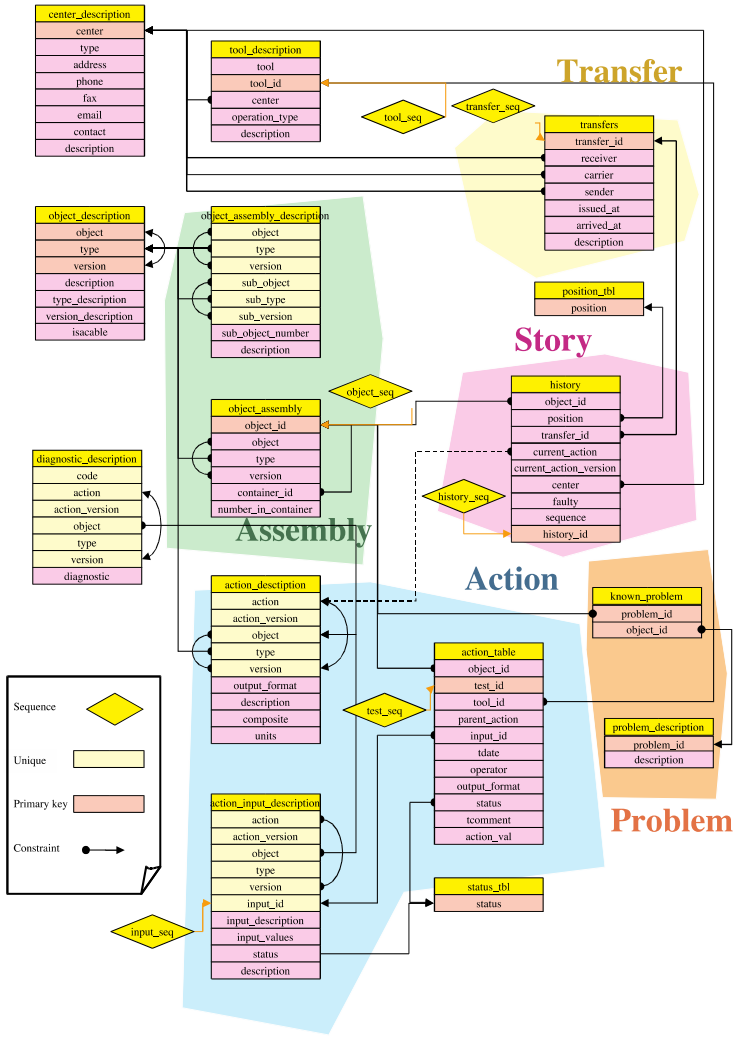


Data Extraction:

- via BigBrowser (limited functionality)
- User-provided query tools

CMS Tracker Scheme

- System tables
  - object list (*object_description*)
  - History
  - Assembly
  - Transfer
  - Institute list (*center_description*)
  - Problem list (*known_problem*)
- Action tables (to store measurement results)
  - Sensortest (IV, CV, stripscan)
  - Mechanical assembly precision (measured with CMM)
  - Bonding (which channels have been bonded/not bonded)
  - ……



PROPOSAL FOR BELLE-II

Proposal for Belle II

- mySQL Database running at HEPHY
- Web-Interface using PHP for most of the db interaction
  - Data extraction
  - Inventory, logistics
- Upload of measurement data directly from measurement software (when available)
  - LabView Database connectivity tested and working
  - Root ?

Web Interface

- **Login:** Username/password to identify user (=institute)
- **Inventory:** shows list of all objects (now only sensors)
  - Click on sensor shows all information for it (i.e. all measurements and history)
- **Shipments:** transfer to inventory of other institute
- **Assembly:** build modules, ladders, layers (later)

Another topic which goes in parallel to Database

OBJECT NUMBERING

Object numbering

- When using a database, each object needs to have an unique ID number
- CMS has used barcodes to read unique ID numbers, called OBJECT ID

- Barcode can be put onto object (envelope or box) by vendor or locally (e.g. Dymo barcode printer)
  - Very small 2D barcodes have been used by CMS to remain on modules

HPK Sensor Numbering Scheme

- E.g. Sensor 2 02 01 2 0404 52 (12 digits)
  - Meaning of digits:
    - 2……..*Belle-II*
    - 02…..…*SVD* (01…*PXD*,…)
    - 01……Sensor (02…*Hybrid*, 03…*Ladder,…*)
    - 2……..*HPK* (1…*Micron*)
    - 0404……*HPK Batch No.*
    - 52……*Sensor within batch*
  - Written without blanks: 202012040438

- Proposed to HPK already (using code-128)

THAT'S IT. ;-)