The STS for the CBM experiment at FAIR

- STS is core detector of CBM
- Located inside of dipole magnet
- Track reconstruction, momentum measurement (low material budget)

### STS ladder

- Sensor module
- CF support structures
- Sensor holding structures, L-legs
- Sensors glued on space frame using L-legs

### Instrument for geometrical survey

- Three-axis measurement instrument (1100 x 800 x 170 mm)
- Equipped with camera
- Suitable for measuring ladder ~1000 mm
- Non-rectangularity of X & Y axis is 17 µm

### Assembly tools

- Concept tool
- Module holder
- Module
- Assembly of first module
- Assembly of second module
- Two modules assembled on the CF ladder

- The concept tool has been designed to mount the sensors on the CF ladders.
- Sensors are positioned by ledges on the sensor holder.
- Sensor holder is positioned to the tool with dowel pins.
- Assembly of a CF ladder with single non-functional module mounted on it.
- Ensures the feasibility to mount the module on the tool.

### Positioning accuracy of sensors

- Sensor holder with sensor placed on it
- Positioning of sensors on CF ladder
- Optical measurement of edge position of two overlapping sensors
- Alignment of two sensors after fitting
- Optical measurement of surface positioning of sensors in 3-D
- Alignment of sensor relative to mounting tool giving precision of ~40 µm

### Conclusion & Outlook

- Positioning of sensors achieved within the target range (100 µm).
- Improved second generation of the mounting tool is under construction to assemble the functional ladders for the mSTS in 2018.