



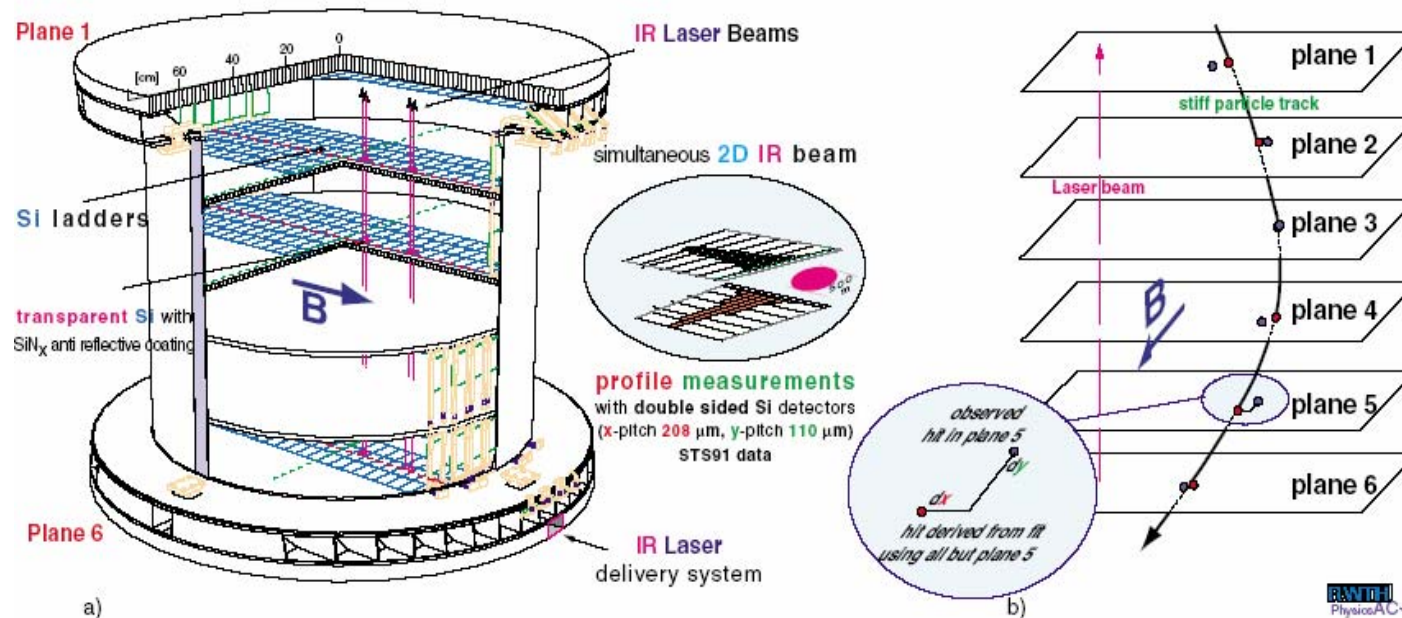
Alignment proposal for Silicon sensors

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An alignment proposal for μSi sensors

- Usage of collimated laser beams (IR spectrum) going through silicon detector modules. The laser beams would be detected directly in the Si-modules.
- Based on previous AMS-1 experience we can project that **few microns** ($<2 \mu\text{m}$) resolutions would be achieved.

AMS Laser & Cosmics alignment



An alignment proposal for SiLC

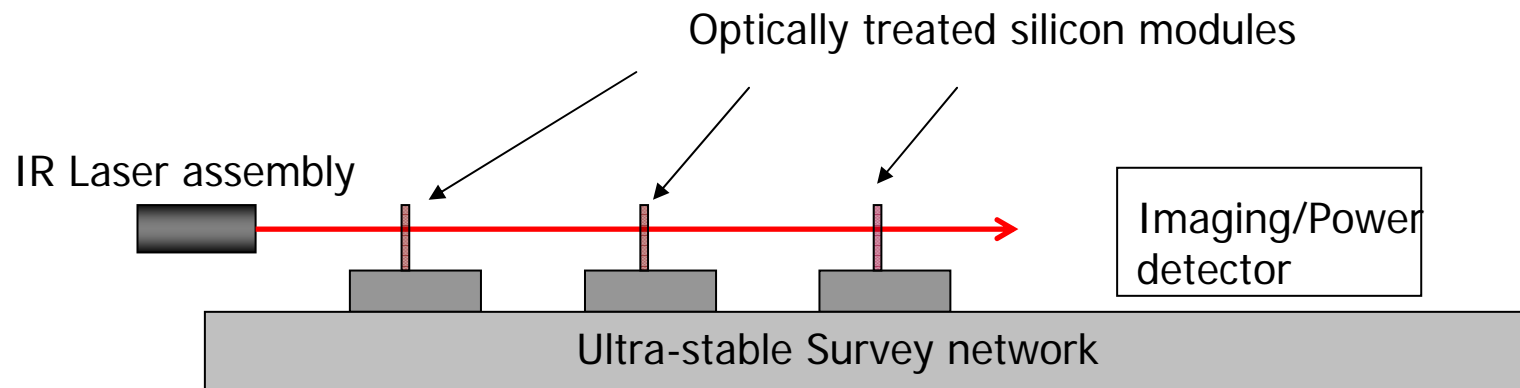


- Main advantages:
 - ❑ Particle tracks and laser beam share the same sensors removing the need of any mechanical transfer.
 - ❑ Minimum interference with Silicon support structures
 - ❑ No precise positioning of the aiming of the collimators. The number of measurements has to be redundant enough

Embedded straightness monitor - Initial R&D



- ❑ Silicon module surface requires special treatment to improved its optical quality/transmittance
- ❑ Dedicated ultra-stable test stand for “optical” characterization of the modified silicon modules: reflectivity, transmittance, absorption, polarization sensitivity, wedge effect, response uniformity...



Current Status



- New EUDET contract started mid-September (few months delay)
 - Currently at CMS: Know-how from Silicon HW alignment.
- Preparation/purchasing of bench test at Santander:
 - Lasers, mechanics, electronics.
 - Optically treated modules not yet available (several options under consideration)
 - Ready by 1st Quarter next year.
- Other EUDET/SiLC related activities: TB participation at DESY next week