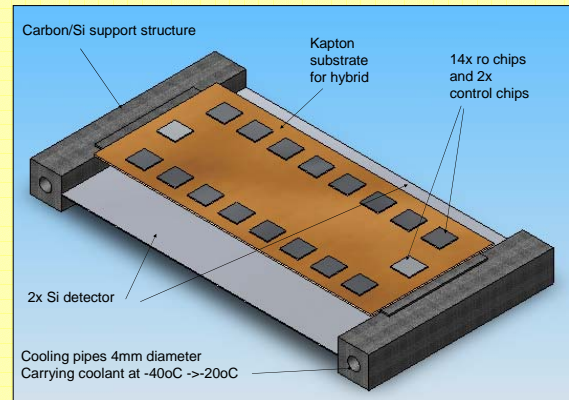
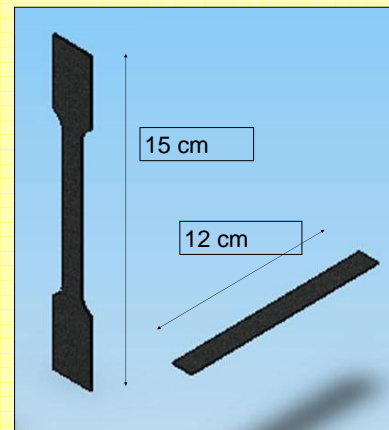


Development of Supermodule Structures

- For the slhc si tracker upgrade Glasgow contribute
 - mechanical design
 - thermal design and
 - prototyping of the structures
- design studies made using FEA (ANSYS) of different designs
- based on different support materials E.g. Carbon fibre, CSiC, SiC, Ceramic
- to evaluate thermal & mechanical behaviour of the prototypes
 - thermal studies will look at the heat flow from the modules to the cooling fluid
 - aim of optimizing the sensor temperature
 - then the mechanical properties of the resulting can be studied
- Process of building prototypes to investigate the engineering feasibility of the best designs for a given material
- In the first instance we want to look at a CSiC
 - This material has been developed for lightweight mirror and space applications
 - Manufacture “green bodies” from various carbon fibre type materials
 - Infiltrate with Si by gas or liquid
 - Good combination of mechanical and thermal properties
 - Being investigated for telescope and spacecraft engineering
- Prototypes will be evaluated in the laboratory to benchmark the FEA studies using dummy modules to provide a realistic heat load



Conceptual Module: (3D CAD model)



CSiC Samples (XYCARB) Tension & Thermal

