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## Interlocking Super Modules for Future Large Area Tracking Systems

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Recent developments in the mechanical supports for the next generation of large area tracking systems at HL-LHC have established the benefits of large-scale multi-module systems. In this presentation, we report on an evolution of this approach targeted towards future large area tracking systems for future e+e- and pp collider experiments.

We will describe the design of a large-scale interlocking structure which incorporates a 4m long mechanical support, manufactured from carbon-fibre reinforced polymer, with the electrical services and cooling systems required for approximately 300 silicon strip sensor modules. This design accomplishes a high stiffness-to-mass ratio through a high moment of inertia. We will report on the development of a suitable manufacturing process which has resulted in a series of one metre length prototypes with integrated forced-air cooling channels and describe the results of an initial measurements of cooling performance.

Finally, we will describe our first attempt to integrate services like low-mass kapton cooling tubes into the structure to study the thermal performance with mono- and bi-phase cooling systems for higher power applications.

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