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## **Towards a Carbon-Fiber wire based drift chamber**

*Thursday, November 21, 2024 2:15 PM (20 minutes)*

We will present R&D towards an all/dominantly Carbon Fiber (CF) low mass multi-wire proportional chamber utilizing CF sense wires and optimized CF based support structures to hold them in place. Such a technology is an ideal match for the needs of future very light-weight tracking devices at a variety of particle physics experiments. A calculation of material budget between state-of-the-art gold-plated tungsten wires and CF wires of similar dimension show a drastic potential reduction of the radiation length  $X_0$  by a factor 10. The talk will highlight early results towards cutting-edge active sensing wire chambers providing the critical R&D for detectors at future colliders relying on transformational manufacturing techniques.

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