**Key Goals and Technical Approach**

- Large database of new resin/interface combinations has been developed for material design and optimization with IFSS varying by 50-115 MPa, resin yield from 61-164 MPa, and resin energy absorption 70-120 J/cc
- Design a functionally graded composite from the materials properties to improve ballistic performance

**Major Results, Key Accomplishments**

- Materials by design by selecting IFSS/Resin/Architecture can vary the V50 from 250-400 m/s and extend delamination from 3” to over 6” in thin laminates

**Graphs**

- Depth of Penetration - Strike Face Selection
- Thin Laminate Vr-Vi - Back Face Selection

- Weave
Fiber/matrix Interface Database
Test methodology for IFSS
CVD Silane Deposition Process
CVD process to scale
Conference Proceedings

Functionally Graded Capstone Panel Design

Strike Face: High penetration resistance and crush strength (DoP)
Back face: Energy dissipation through delamination (Thin Laminate $V_{50}$)

Final Capstone Design

8HS (933) PW (463)

IFSS 92 MPa
FVF 65%
$\sigma_y$ 61 MPa
Energy Absorption 71 MJ/m$^3$