

DYNAFAB V3.0

AUTOMATED FINITE ELEMENT PREPROCESSORS FOR TEXTILE COMPOSITES

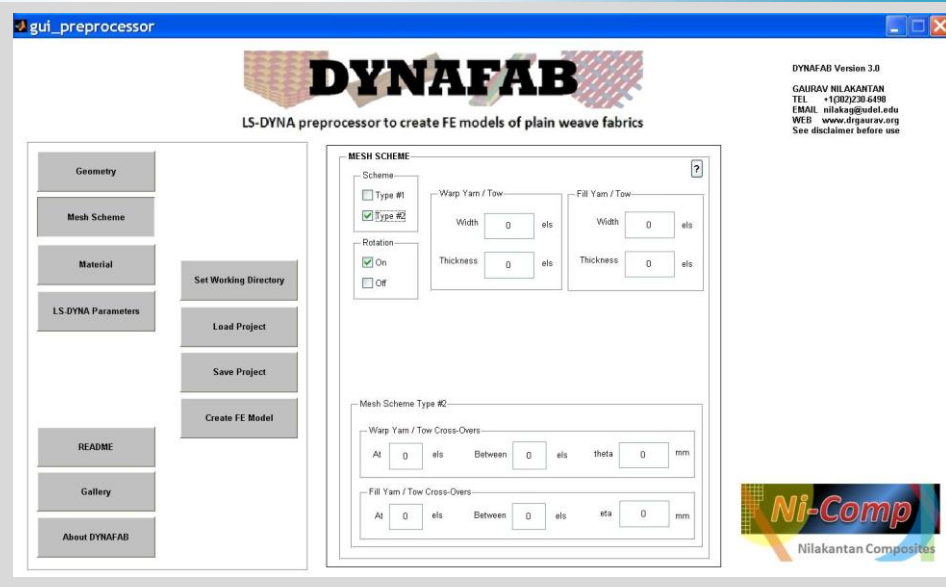
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FABRIC FINITE ELEMENT PREPROCESSORS

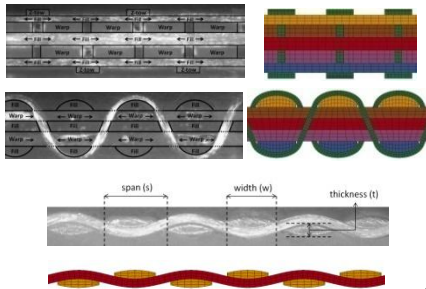
DYNAYARN, DYNAFAB, DYNA-HEA

- Manually creating FE models of 2D and 3D fabrics with realistic yarn level architectures is a labor-intensive time-consuming process due to the intricacy of the yarn / tow geometry and undulations
- Each time changes need to be made in the geometry, architecture, or mesh, the entire model usually needs to be set up again from scratch
- Using automated preprocessors to create FE models of 2D and 3D fabrics drastically cuts down the time required to set up a high quality model without erroneous penetrating surfaces
- **DYNAYARN** – straight or crimped yarns comprised of shell or solid elements
- **DYNAHEA** – multiscale HEA fabric models
- **DYNAFAB** – 2D and 3D fabrics comprised of solid elements

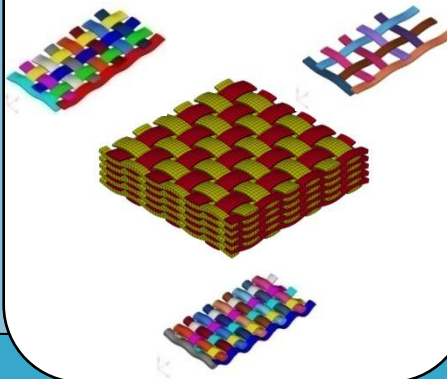


MICROGRAPHS OF FABRICS

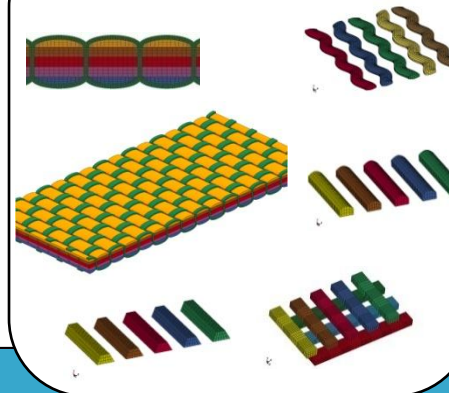
- Dimensions obtained from micrographs serve as geometrical input to DYNAFAB



EXAMPLES FROM DYNAFAB - 2D FABRICS



EXAMPLES FROM DYNAFAB - 3D FABRICS



SELECTED FEATURES

- Output is an LS-DYNA keyword inputfile
- Available yarn centerline paths are sinusoidal, elliptical, or user-defined equations
- More than ten available tow cross-sections including circular, elliptical, trapezium, rectangular, sinusoidal, mixed cross sections, user-defined cross sections, and cross sections that transition along the tow length
- Z-tow module to create stitching yarns or through-thickness tows or varying spans and inclinations
- Two customizable mesh schemes using solid elements
- Create multiple layer fabrics, option to output only warp or fill yarns / tows
- For more information visit

www.nicomposites.com