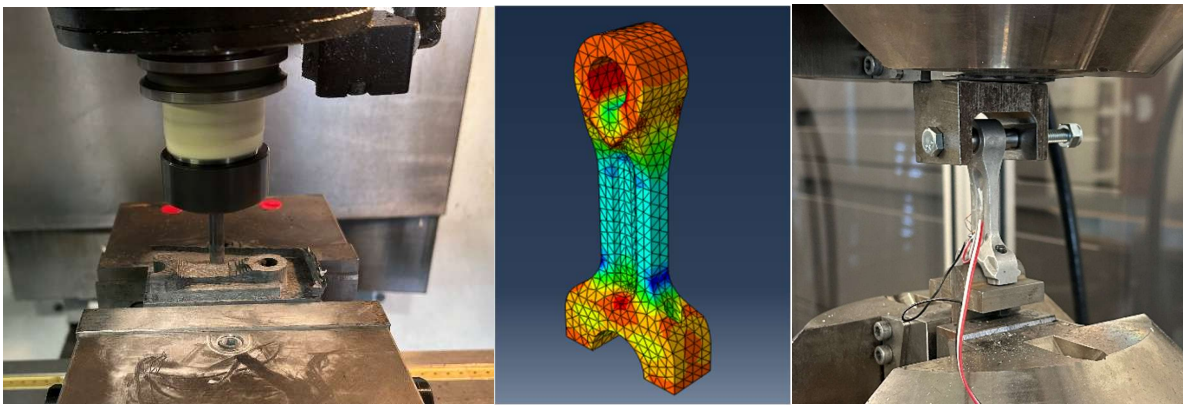


MANUFACTURING AND ANALYSIS OF RECYCLED COMPOSITE CONNECTING RODS UNDER TENSION AND COMPRESSION TESTING

**A Master's Thesis Defense in Mechanical Engineering
California Polytechnic State University, San Luis Obispo**

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Carbon fiber reinforced polymer (CFRP) is an engineering material renowned for its high-strength and low-density material properties. However, with such favorable material properties comes the cost of high energy usage required to produce raw carbon fiber. Some processes exist to recover raw carbon fibers from CFRP parts with a massively reduced energy cost; however, these processes struggle to meet the material properties of high-performance, virgin carbon fibers. This research aims to explore the viability of applying recycled CFRPs to internal combustion engines to both improve energy costs during manufacturing and while in use. To accomplish this, a manufacturing method was developed utilizing an autoclave and CNC machining to produce connecting rod samples which were then tested under loading representative of the cycle of an engine's piston-crank assembly. The results of these tests were used to refine a Finite Element Analysis (FEA) model that could serve as the foundation to further explore the structural viability of replacing connecting rods with recycled composites.

Friday June 6th, 11:00AM, Building 13 Room 124b

Zoom Meeting ID: 833 0757 7221 | <https://calpoly.zoom.us/j/83307577221>