

## CE 890 Graduate Seminar

- SPEAKER:** Harrison Poole, MS student (Advisor Dr. Hani Melhem)
- TOPIC:** “Analysis of Load Distribution for an FRP Panel Bearing on Steel Beams”
- DATE:** March 2, 2011
- TIME:** 4:00 p.m. (refreshments at 3:45 p.m.)
- PLACE:** 2144 Fiedler Hall

### ABSTRACT

Fiber Reinforced Polymer (FRP) is a relatively new material used in the field of civil engineering. FRP is composed of fibers, usually carbon or glass, bonded together using a polymer adhesive and formed into the desired structural shape. Recently, FRP deck panels have been viewed as an attractive alternative to concrete decks when replacing deteriorated bridges. The main advantages of an FRP deck are its weight (roughly 75% lighter than concrete), its high strength-to-weight ratio, and its resistance to deterioration. In bridge design, AASHTO provides load distributions to be used when determining how much load a longitudinal beam supporting a bridge deck should be designed to hold. Depending on the deck material along with other variables, a different design distribution will be used. Since FRP is a relatively new material used for bridge design, there are no provisions in the AASHTO code that provides a load distribution when designing beams supporting an FRP deck. FRP deck panels, measuring 6' x 8.5', were loaded and analyzed at KSU over the past 4 years. The research conducted provides insight towards a conservative load distribution to assist engineers in future bridge designs with FRP decks.