Thesis title:

Investigation on behavior of Fiber Reinforced Polymer (FRP) strengthened concrete members subjected to Alkaline Environmental Exposure.

Abstract:

Fibre reinforced polymer (FRP) is a versatile material in the structural strengthening in 21st century. Among various types of fiber reinforced polymer such as Aramid, Glass , Carbon and hybrid. Carbon fiber is popularly produced and used as strength enhancing material in structural elements. Durability of FRP to concrete bonded interface has become a prominent area of research. Service life of CFRP bonded concrete surface is influenced by temperature fluctuations, acidic attack, basic attack, sulphate attack dry/wet cycles and UV radiations. pH of marine environment is greater than 7. Hence it is basic under the standard acid base theory. In the cases where CFRP used in the marine structures or the structures close to sea, the effect of Basic attack is significant. Hence it is very important research area where less importance was given in literatures. Basic exposure of CFRP in different pH levels and bond properties of CFRP with concrete is not deeply analysed so far. In this study bond performance of CFRP strengthened concrete member is investigated by exposing such members in basic solution with varying concentrations, bond shear strength will be monitored periodically.