

I am now studying a new strengthening technology, which is called near-surface mounted CFRP reinforcements.

Currently, although external bonding with FRP reinforcements have been widely used in structural strengthening and repairing. However, there existing some problems. For example, the debonding of FRP from the concrete often occurs at around 35% of the strength, which resulting in underutilized of the high strength property of the FRP. Moreover, since the FRP plate covers the concrete surface, it is difficult for us to visually inspect.

In order to solve these problems, some researcher proposed this new technology.

And unlike the external bonding, we bond FRPs into the grooves which are cut into the concrete cover with groove filler, epoxy or something like that.

And compared to steel and externally bonded FRP reinforcement, the NSM system has a number of advantages, such as better corrosion resistance, reduce installation work and so on. In a word, this method can be seen as replacement of externally bonded frp reinforcement in many cases.

Currently, different shapes of FRP reinforcements are used in the NSM technology. Among them, strand seems to pose great potential in terms of cost and adhesive performance compared with other shapes. Therefore, we would like to study the strengthening effect of strand utilized in the NSM technology by conducting large-beam tests. And we also would like to study the effect of different kinds of factors such as groove dimensions, FRP amount on the flexural performance of RC beams strengthened with NSM.