

## Use of PET Fibers for Enhancing the Ductility of Exterior RC Beam-Column Connections Subjected to Reversed Cyclic Loading

**Authors :** Comingstarful Marthong, Shembiang Marthong

**Abstract :** Application of Polyethylene terephthalate (PET) fiber for enhancing the seismic performance of exterior RC beam-column connections in substitution of steel fibers is experimentally investigated. The study involves the addition of Polyethylene terephthalate (PET) fiber-reinforced concrete, i.e., PFRC at the joint region of the connection. The PET fiber of 0.5% volume fraction used in the PFRC mix is obtained by hand cutting of post-consumer PET bottles. Specimens design as per relevant codes was casted and tested to reverse cyclic loading. PFRC specimen was also casted and subjected to similar loading sequence. Test results established that addition of PET fibers in the joint region is effective in enhancing the displacement ductility and energy dissipation capacity. The improvement of damage indices and principal tensile stresses of PFRC specimens gave experimental evidence of the suitability of PET fibers as a discrete reinforcement in the substitution of steel fiber for structural use.

**Keywords :** beam-column connections, polyethylene terephthalate fibers reinforced concrete, joint region, ductility, seismic capacity

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