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[ADVANCED](#)[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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## STRUCTURAL ENGINEERING / EARTHQUAKE ENGINEERING

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[\[PDF \(953K\)\]](#) [\[References\]](#)**ENHANCEMENT OF FLEXURAL PERFORMANCES THROUGH FRP HYBRIDIZATION WITH HIGH-MODULUS TYPE CARBON FIBERS**Zhishen WU<sup>1)</sup>, Kouji SAKAMOTO<sup>2)</sup>, Kentaro IWASHITA<sup>1)</sup> and Akira KOBAYASHI<sup>3)</sup>

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The purpose of this study is to investigate the flexural strengthening effects of RC beams with hybrid FRP sheets consisting of high-modulus type continuous carbon fibers. Based on a preliminary hybrid design following mixture rules for the hybridization of high strength and high modulus types of carbon fibers, the hybrid fiber sheets are used to strengthen RC beams. Throughout a series of investigations of beam specimens under three-point bending, the hybrid fiber sheets consisting of high-modulus type carbon fibers as an externally bonded reinforcement can effectively enhance the mechanical properties of RC structures. And serviceability performances of structures such as cracking resistance, stiffness and steel yielding load etc., especially, can be enhanced. Moreover, through a rational design of hybrid fiber sheets, the stress drops due to the gradual ruptures of fibers are controlled and sufficient ductility is achieved by avoiding premature debonding. Finally, some indices for evaluating the strengthening effects of hybrid fiber sheets and the optimum mixture are also suggested and discussed.

**Key Words:** FRP sheets, hybrid, flexural strengthening, high-modulus type carbon fibers[\[PDF \(953K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

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