

Yoshida Award (Research Accomplishment Section)

Comprehensive Study on Structural Applications and Development of Fiber Reinforced Cement Composites



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Since the 1970s, Dr. Rokugo has researched concrete fracture behaviors, such as the snap-back phenomenon and the tension-softening characteristics of concrete, and subjected them to numerical analysis. Recently, he has been focusing on strain-hardening cement composites (SHCC) that show pseudo strain hardening and multiple fine cracks. He also has been actively promoting the greater use of SHCC.

After many years of research into steel fiber-reinforced concrete, he recognized that, in order to promote the greater use of a new material, a standard evaluation test method and a guideline for structural design and construction must be established and methods that utilize the material's characteristic must be developed. He played a leading role in compiling the Guideline for Design and Construction of Strain Hardening Cement Composites (JSCE, 2007) and the Strain Hardening Cement Composites: Structural Design and Performance (RILEM, 2012).

He proposed methods for utilizing SHCC. For example he developed a concrete structure that shrinks little and strongly resists flexural and shear cracking, a SHCC joint block for bridge girders that has a smaller expansion gap yet allows appropriate movement of a bridge superstructure an earthquake, a shear reinforcing method that uses both a continuous fiber rope lining and an SHCC surface coating, and so on.

The JSCE recognizes these achievements as worthy of the Yoshida Award for Research Accomplishment.