

Yoshida Award (Research Accomplishment Section)

RESEARCH ON HIGHER PERFORMANCE AND EXTENDED APPLICATION OF CONCRETE STRUCTURES



Dr. Yukikazu TSUJI
(President of Maebashi Institute of Technology)

Dr. Tsuji has pursued a creative research career in a wide range of fields relating to concrete engineering in civil engineering, including design, materials, construction, and codes and standards. Notably, in his research on expansive concrete, he is highly regarded for establishing a quantitative evaluation method for chemical prestress. This plays an essential role in cracking control and technology for enhancing the performance of concrete structures. Moreover, in the control of temperature cracking in mass concrete, he proved that it is effective to use expansive concrete. In analytical research, too, he has contributed a non-linear temperature stress analysis method that considered the coupling of the hydration-and-heating process with the thermal conduction of cement, thus contributing to improvements in durability. Further, he elucidated a production method for high-performance PC grout, which is crucial for increasing the performance of PC structures, and demonstrated its effectiveness. In research on connecting concrete members, he clarified the basic nature of the mechanical properties of reinforced concrete with vertical construction joints, or PPC beams, in an effort to extend their application range in consideration of actual methods of constructing overhangs. Lately, he has been involved in an ultra-long-term performance evaluation, covering a never previously explored 10,000 year term, with a view to applying concrete materials in the disposal of radioactive waste.

As described above, Dr. Tsuji has had a creative research career focusing on the cracking problem that is an inevitable facet of concrete engineering, the development of higher performance PC structures, and the integration of individual concrete members into monolithic structures. Throughout his career, he has set a remarkable record in technological advancement and development. Thus, JSCE recognizes these achievements as worthy of the Yoshida Award for Research Accomplishment.