Preface

A SPECIAL ISSUE ON PROGRESS IN CIVIL ENGINEERING

The *Open Civil Engineering Journal*, which is one of the most relevant international journals in civil engineering area, wishes to promote the latest researches in engineering structures. This special issue contains 8 invited outstanding articles covering a wide range of topics. We have assembled recent studies in the field of several typical structures, attempting to provide a glimpse into the wide range of engineering problems. It is expected that the special issue will benefit researchers and engineers who are interested in the design of protective structures and stimulate the research interests in this important and promising area of civil engineering. A brief overview of each article published in this special issue is provided here.

In "Experimental Study on Assembled Monolithic Concrete Shear Walls Built with Precast Two-way Hollow Slabs" , Zhijuan Sun *et al.* present a quasi-static experiment on one reinforced concrete shear wall and two shear walls built with precast two-way hollow slab. Test result shows that the new type of shear walls experienced the loading process from the whole wall to the portioned wall due to the internal and vertical joints of the wall body, which can be applied in practical construction.

In "Study on Metering Scheme of Seismic Experiment for Shear Wall Built with Precast Hollow Slab" , Zhijuan Sun *et al.* present the measuring scheme of shear wall deformation and steel strain. The special mechanical characteristic of the shear wall built with precast two-way hollow slab is the relative deformation of the concrete on both sides of vertical joint. The study shows that the measuring methods of shear wall deformation and relative deformation are reasonable and feasible.

In "Experimental Study on Precast Concrete Shear Walls with Different Hollow Slabs" , Qinyan Zhao *et al.* present a test on two shear walls built with precast two-way hollow slab with different details. The study shows that brittle shear failure can be avoided and the failure behaviors tend to evolve from integral wall to the combination of wall and columns. Also, compressive capacity of walls can be affected by the dimension of transverse holes.

In "Test Study on Strength and Permeability Properties of Lime-Fly Ash Loess Under Freeze-Thaw Cycles", Zhiquan Zhang and Yufen Zhang present a study on the engineering behaviors of lime-fly ash loess using uniaxial compressive test, fast direct shearing test and permeability test. Test data show that uniaxial compressive strength of lime-fly ash loess has good water stability and freeze-thaw stability, and can be applied in permafrost subgrade.

In "Unloading Phenomena Characteristics in Brittle Rock Masses by A Large-scale Excavation in Dam Foundation", Changgen Yan *et al.* investigate a large-scale excavation around the foundation of the dam. The characteristics of unloading rock masses were described with the acoustic wave velocity monitoring method. The unloading deformation has a direct temporal dependence, and increases quickly during the first 90 days, then with a slower rate from 90 to 180 days, and after that the unloading deformation will be small enough to be neglected.

In "A Review on Progressive Collapse of Building Structures" , Hao Wang *et al.* assess the recent studies on the progressive collapse of building structures from experimental study, numerical simulation and theoretical analysis. The design methods to prevent progressive collapse for building structures are also discussed.

In "Damage Identification of Continuous Rigid Frame Concrete Bridge", Shengnan Huang *et al.* present a large-scale experimental study on safety monitoring methodology for continuous rigid frame concrete bridge. Two load stages and ten different load steps were simulated to test various scenario of long-term loading and different levels of overload. Curvature mode method was adopted to detect the damage during the exercises. In addition, the Finite-Element Analysis (FEA) was utilized, and the experimental recurring was verified positively through FEA model.

In "Corrosion Monitoring Using Embedded Piezoelectric Sensors", Lei Qin *et al.* develop a new type of corrosion detection technique for reinforced concrete. The technique used piezoelectric sensors to detect the ultrasonic signals during corrosion. The state of bonding layer of concrete and steel bar could be monitored. It can also detect the initial of corrosion and cracking of bonding layer.

I am grateful to all the authors and reviewers for the contribution and support during the course of editing this special issue. Their prompt responses have made it possible for us to publish this special issue on time.

Guest Editor:

Prof. Mingjin Chu

School of Civil Engineering

Yantai University, China

E-mail: housind@126.com