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Sustainable High-Performance Hydraulic Concrete

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Message from the Guest Editors

Concrete has always been indispensable as a material for engineering construction of hydraulic structures. Hydropower resources are often distributed in alpine regions, which are characterized by a complex terrain, large climate changes, and frequent extreme weather. Such a harsh environment undoubtedly poses new challenges for the durability of hydraulic concrete, which is easily damaged by various environmental factors. In fact, concrete often fails before reaching its designed service life due to these environmental factors. This is not the only issue facing the industry: Recent changes in the general green awareness have meant that the development of sustainable hydraulic concrete is now inevitable. One of the main features of sustainable hydraulic concrete is reducing, as much as possible, the amount of cement used and utilizing a large amount of admixture. As hydraulic concrete is a typical mass concrete, admixture content in it may be as high as 70% or even more, perhaps leading to low strength and unsatisfactory durability. The macroscopic properties of hydraulic concrete are considerably affected by its microstructure.

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Message from the Editor-in-Chief

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