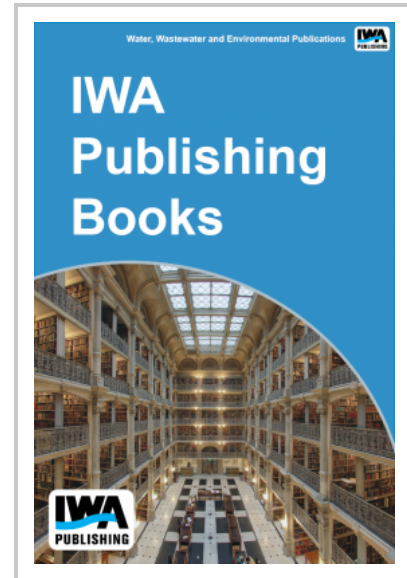


Microbial Granular Sludge: Mechanisms and Hydrodynamics

The proposed book will focus on microbial granular sludge, including granule formation, hydrodynamics and process design. The book will introduce microbial granular sludge based technology such as anaerobic granular sludge process and aerobic granular sludge process. Formation and characteristic of granular sludge will be elaborated in three chapters. Selective pressure, shear force, quorum sensing, EPS and loading effect on sludge granulation will be discussed. Then in the following two chapters, hydrodynamics of granular sludge based reactor will be introduced.

There are two main topics under hydrodynamics, i.e. macrohydrodynamics including flow pattern, gas hold up, shear stress and dispersion analysis for different reactors, and microhydrodynamics of the granular sludge including mass transportation and shape change. CFD simulation will also be applied to investigate the hydrodynamics of granular sludge process. In the last chapter, process design will be discussed based on some case studies. Process model method and some model platform will also be introduced to assistant engineering design.



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