

## **XUDONG FU, Ph.D.**

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Dr. Xudong Fu received his Ph.D. in Hydraulics and River Dynamics from Tsinghua University in 2001, then joined the River Research Institute in the Department of Hydraulic Engineering, Tsinghua University, as an assistant research professor. After a one-year academic visit at the University of Regina, Canada, in 2003 collaborating with environmental scientists, he was promoted associate professor in 2004 and full professor in 2009. He served as the director of the River Research Institute from 2008 to 2013, and was appointed vice director of the State Key Laboratory of Hydrosience and Engineering and chair of the School of Civil Engineering in 2017 and 2020, respectively.

Dr. Fu is recognized for his research on sediment dynamics and morphological responses across multiple scales, with applications to flood hazards mitigation in a changing environment. He developed two-phase flow models for sediment-laden flows, hyperconcentrated flows, and rapid granular flows. He investigated sediment transport rate, flow resistance, riverbed morphology, and their relationship with emphasis on the linkage from flumes to natural rivers. These fundamental work facilitated the improvement of numerical tools for simulating outburst floods and flash floods in mountain rivers. With such efforts, Dr. Fu engaged in emergency disposal of multiple high-risk barrier lakes in Sichuan, Yunnan, and Tibet formed during or after the recent earthquake events. He also endeavored to quantify morphological responses of rivers to augmented sediment supply subsequent to the earthquake events on decade-to-century timescales. At the watershed scale, Dr. Fu developed an integrated modeling framework for sediment erosion, transport, and deposition in a drainage network. He applied it to the Loess Plateau and Qinghai-Tibet Plateau for understanding long-term response of sediment yield subjected to climate change and intense human activities. The modeling framework features multi-tree coding, parallel computing, and hillslope-to-outlet sediment routing. It is a potentially powerful tool for investigating erosion and sediment transfer at multiple scales, i.e., from plot to watershed and from hour to decade. He has published over 120 peer reviewed papers, over 50 conference papers, and four book chapters. He has supervised 22 post graduate students.