Third Laureate
Applied Research

◆ **Project Title:** Study of Generation and Propagation of Impulsive Waves Caused by Landslides in Dam Reservoirs

◆ **Researcher:** Behzad Ataie Ashtiani (Ph.D.)

Abstract:

Impulsive waves in dam reservoirs may be generated by any type of geophysical mass flow, including debris flows, debris avalanches, landslides, and rock falls. This phenomenon may be endangering the dam stability, human life and devastating downstream cities. Tsunami is an important type of impulsive waves, caused by displacements or landslides under oceans due to earthquake.

In this research, generation and propagation of impulsive waves caused by landslides in dam reservoirs were studied using experimental and numerical methods and a user-friendly software was developed for the numerical simulations of this phenomena. An intensive experimental investigation on the impulsive waves has been performed. Moreover, a range of Lagrangian methods such as moving-particle semi-implicit method and smooth particle hydrodynamics were studied. The developed software was applied for two real cases to simulate impulsive wave generation and propagation in dam reservoirs. Twelve papers in internationally indexed journals and more than fifteen papers in national journals and national or international conferences have been published based on the outcome of this project.