

## عنوان مقاله:

2D Numerical Modeling of Hydraulic Jump via SPH

## محل انتشار:

بیستمین کنفرانس سالانه مهندسی مکانیک (سال: 1391)

تعداد صفحات اصل مقاله: 5

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## خلاصه مقاله:

In the present work, the smoothed particle hydrodynamics (SPH) is applied to simulation of hydraulic jump in channels with free surface flows. Hydraulic jump is a local phenomenon, and occurs when a rapid change in depth of flow is formed from a low to high stage, usually resulting in an abrupt rise of water surface. SPH is a lagrangian mesh-free method, which can be efficiently used for simulation of turbulent free surface flows in fluids and solution of large fluid deformations. The basis of SPH is reviewed, and mass conservation and momentum equations are discretized accordingly. An explicit stepping formulation is used for simulation of fluid flow. Four types of jumps, with varying Froude number, are investigated with particular reference to the location of the jump and the velocity field. The model is validated by comparing the numerical water depth with the theoretical ones, for which a good agreement is observed

## کلمات کلیدی:

Hydraulic Jump, tank, free surface flow, smoothed particle hydrodynamics, SPH

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/151639>

