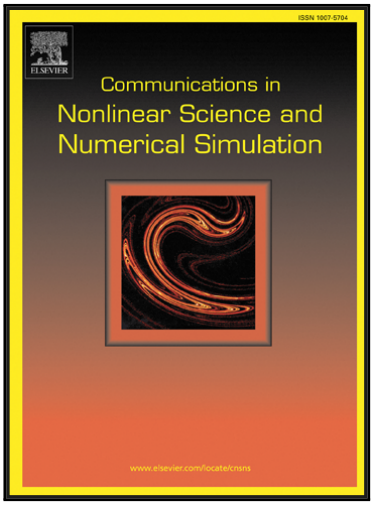

CFD-DEM based numerical simulation of liquid-gas-particle mixture flow in dam break

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Highlights

- Complex multiphase flow of liquid-gas-particle mixture in a dam-break is numerically investigated according to particle density.
- CFD-DEM coupled method is successively adopted to find the natural phenomena involved in two-phase fluids and particle interaction.
- The head speeds of the free-surface and particles show different patterns to particle density.
- The response of the free-surface and particles to particle density is identified by three motion regimes of the advancing, overlapping and delaying motions.