

## Key Word: Powder technology, Fluid dynamics, Simulation Fine grinding, Mechanochemical, Hydrogen

Approximately 70 % of the products are in the state of “powder”. However, the powder behavior has not been controlled yet. The main reason is that we have difficulty in observing the behavior of particles composing the powder by experimental approaches.

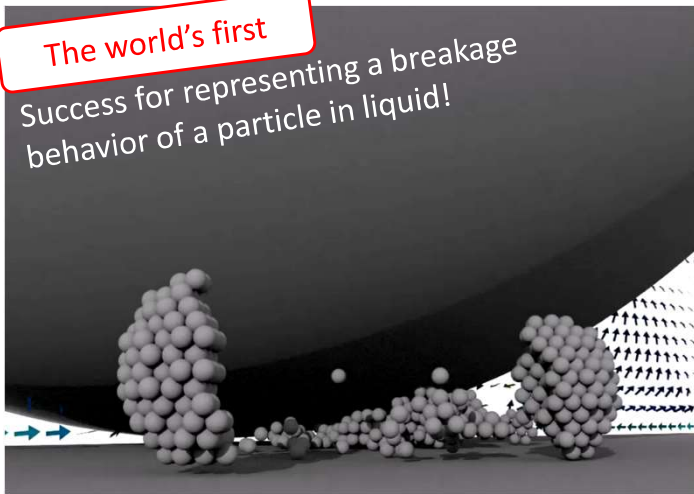
### Objective

Thus,

We make it possible to observe the particle behavior by powder simulation, and develop useful techniques for controlling the powder behavior.

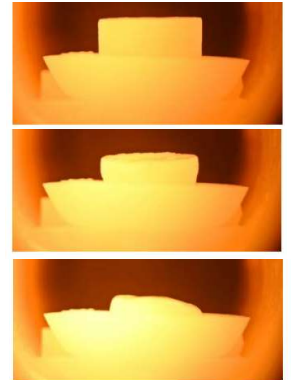
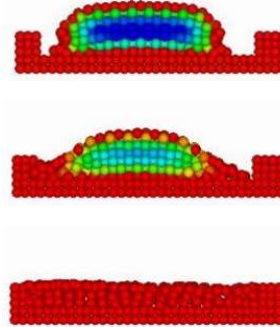
The world's first

Success for representing a breakage behavior of a particle in liquid!



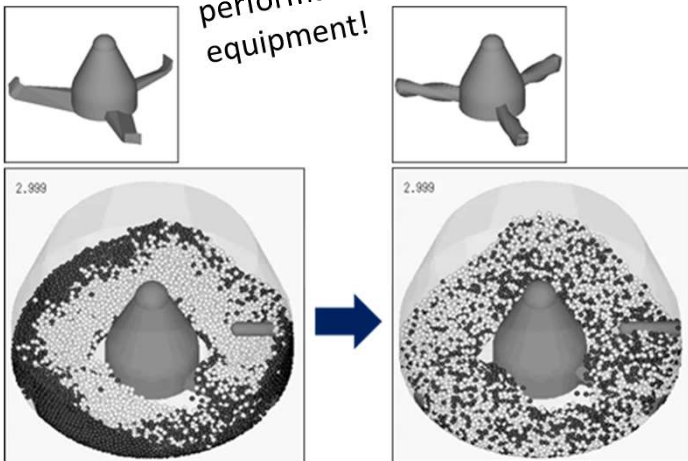
The world's first

Success for representing a softening and melting behavior of a particle in the furnace of 1200 °C



Patented

Achievement of much higher mixing performance than the conventional equipment!



The world's first

Success for producing hydrogen gas from sewage sludge!



### Themes

- Optimum design of powder processing by computer simulation
- Development of simulation model for grinding processes of fine particles and multiphase flow
- Modeling of particles breakage, softening, melting phenomena
- Development of new hydrogen generation processes from biomass and plastic wastes activated by using mechanochemical method

For more information of our laboratory



<http://www2.tagen.to.hoku.ac.jp/lab/kano/>