**What do you ThInK?**

In this series named “What do you ThInK?” we challenge you to find and solve model/simulation errors.

**Nr. 20 – SPH simulation animation for a ball dropped in water**

**Situation:**
A professor asked his students to simulate a ball drop in water using SPH elements in RADIOSS.

A couple of students submitted their results and the results were as shown:

After seeing the animation, Professor awarded full marks to **Student 1** and not to **student 2**.

**What do you ThInK?**
What do you think about the result?

Did **student 2** miss something while modelling?

Find a likely answer below
What do you Think? - Answers ...

Nr. 20 - SPH simulation animation for a ball dropped in water

Even though both the animations look alike, Student 2’s SPH model looks a bit viscous. Professor asked to model a simulation where a ball dropped in water and the animation Student 1’s animation looks close enough to what was asked.

/PROP/SPH/ is the property type used for SPH elements in RADIOSS. Qa and qb are two factors which controls the quadratic and linear bulk viscosity of the elements. When Qa, Qb are high, the SPH elements behaviour will be viscous compared to Qa, Qb with lower values.

Student 1 used Qa= 1e-20 and Qb= 1e-20 whereas Student 2 used Qa= 2, Qb=1.

So the higher the Qa, Qb the more will be the viscous behaviour.