Dear Dongwook lee

I’m doing some computational investigation on the electrical explosion of thin metallic wire in vacuum with the FLASH code. I carry out the simulation based on the magnetized Noh Z-pinch. The initial conditions have been modified according to the electrical explosion of metal wires, i.e., a metal wire of 10μm in diameter embedded in a vacuum (the density for aluminum wire is 2700kg/m3, the density of vacuum is 10-4 kg/m3). The initial temperature is 300K and the velocity is zero.

I applied the USM scheme in cartesian coordinate. However, the simulation will abort within three steps, because the dt is not positive. I have tried all the provided RiemannSolver. The distribution of density in the initial stage is set as follows

![C:\Users\kunwang\AppData\Roaming\Tencent\Users\569061889\QQ\WinTemp\RichOle\OZ22IIG2(RS0U]FE4$VYMTF.png]()

Fig.1 the density distribution in the initial stage

However, the velocity and temperature will increase to a very big values at the interface of metal wire and vacuum in discrete points, which are obviously incorrect, as shown in Fig.2.



Fig. 2 the velocity distribution at 1 step

If I reduce the interpolation order from 2 to 1, i.e., from MH to FOG, the simulation will go smoothly. I wonder if there is something wrong with the interpolation modules. Do you have any suggestions? Thank you very much.

Best wishes!

Wang Kun