

## **Droplet impact and solidification**

**Result to be presented in a poster**

### **Background:**

In rapid manufacturing development of technology for single material objects has been going on for some time. A new direction is the fabrication of objects of multi-material base. To have fully functional integrated products, high quality multi-material systems are needed. To be able to develop a manufacturing process, fundamental knowledge on various aspects of multi-material 3d printing needs to be developed.

### **Project**

Within the current project, a part of interaction of metallic droplets on surfaces of polymeric substance is studied. This encompasses the approach of such a droplet towards a surface, the behaviour during impact and spreading on the surface including heat transfer and thus solidification of the metallic particles.

A numerical model has been made, extending the well-known open source code Gerris with heat transfer and solidification. The numerical method has been validated against analytical and experimental results. It will be used in parallel with experiments to increase understanding of the behaviour of solidifying droplets.