Contact Dynamics

Goal: Last week we learnt about Event Driven MD as a method to model systems of perfectly rigid particles. The Contact Dynamics method is an alternative method to model such systems with the advantage that lasting contacts can be considered as well. The major difference is that the forces are calculated to fulfil given constraints, like the Signorini condition, i.e. particles cannot overlap. More details can be found in the lecture notes, including detailed derivations for simple examples.

Task: Implement the Contact Dynamics method for a system of spherical particles in one or two dimensions.

Use the following simplifications:

- Consider frictionless contacts such that you do not need to consider angular velocities etc.
- Assume that the particles have the same mass m and the same Radius R.
- Consider only single contacts.