

JC ideas for SPH code

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1 Intro

Those are some of my ideas to implement in the SPH code that I am working now.

2 Dynamic Smooth length

Allahdadi[1] suggest that using a dynamic smooth length could reduce the computational time of the simulation. When simulating shocks, for example, particles get closer between them. In consequence, the amount of particles that fall within the support domain of each particle increases and so does the number of calculations.

3 Impact Simulations

Among the tests tha i coul run, there are:

- Bullet impact on Sphere
- Different impact angles

I readed something of these in [2]

4 Fracture types

I could test the SPG code for different types of fracture like the mentioned in ref. [3] pg.88

May be I could make a test that simulates the conditions of a snadar stress-strain curve

References

- [1] Firooz A Allahdadi, Theodore C Carney, Jim R Hipp, Larry D Libersky, and Albert G Petschek. High strain lagrangian hydrodynamics: a three dimensional sph code for dynamic material response. Technical report, DTIC Document, 1993.
- [2] Willy Benz and Erik Asphaug. Simulations of brittle solids using smooth particle hydrodynamics. *Computer physics communications*, 87(1):253–265, 1995.
- [3] John Conrad Jaeger, Neville GW Cook, and Robert Zimmerman. *Fundamentals of rock mechanics*. John Wiley & Sons, 2009.