



Max-Planck-Institut
für Radioastronomie

How the dynamics of young clusters influence the properties of forming planetary systems



MAX-PLANCK-GESELLSCHAFT

The reduction of protoplanetary disc sizes due to encounters - a numerical experiment

Kirsten Vincke

Max Planck Institute for Radio Astronomy, Bonn

Star-disc encounters



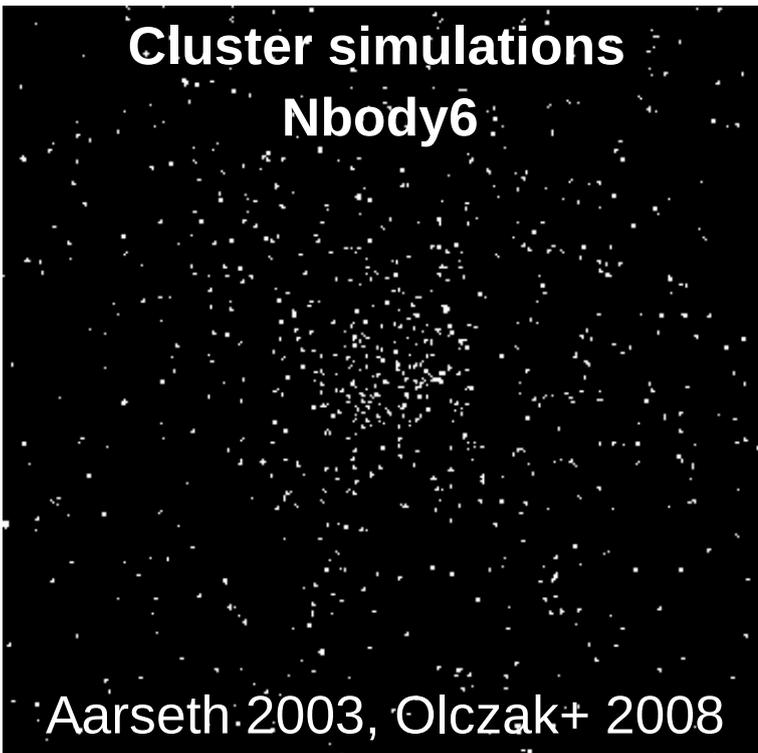
Breslau et al 2014

Star-disc encounters



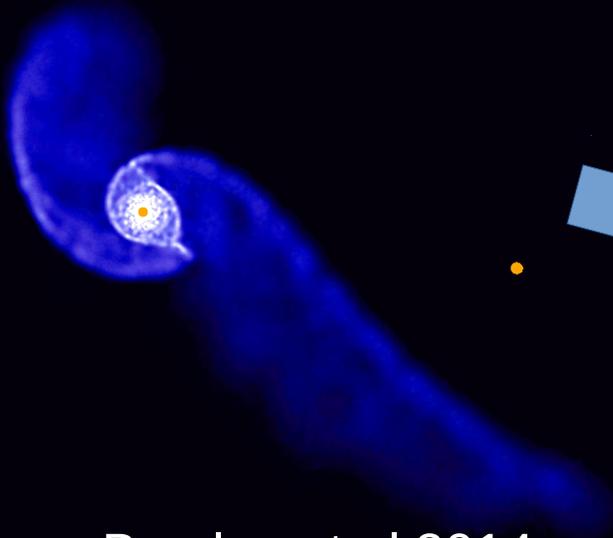
Breslau et al 2014

Cluster simulations Nbody6



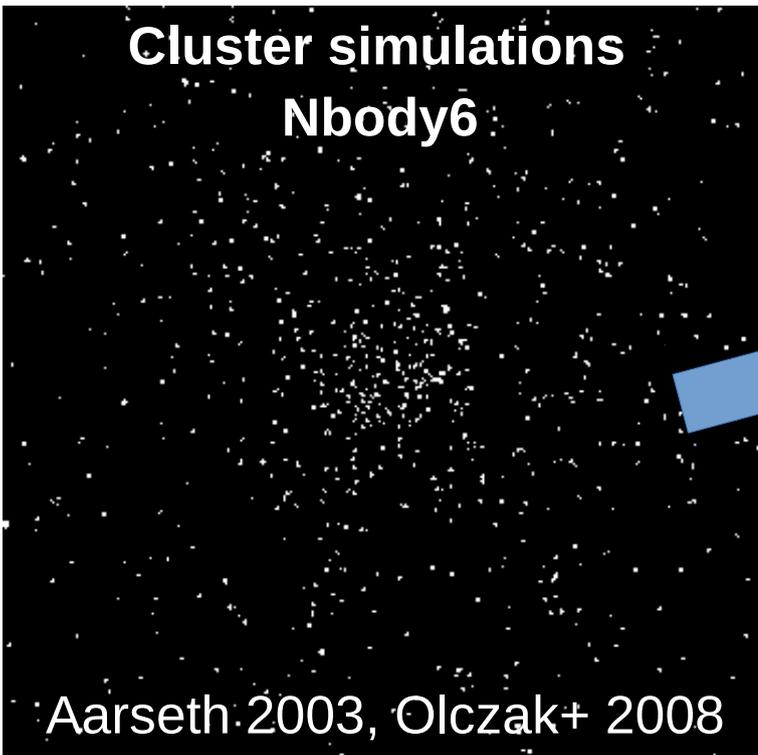
Aarseth 2003, Olczak+ 2008

Star-disc encounters



Breslau et al 2014

Cluster simulations Nbody6



Aarseth 2003, Olczak+ 2008

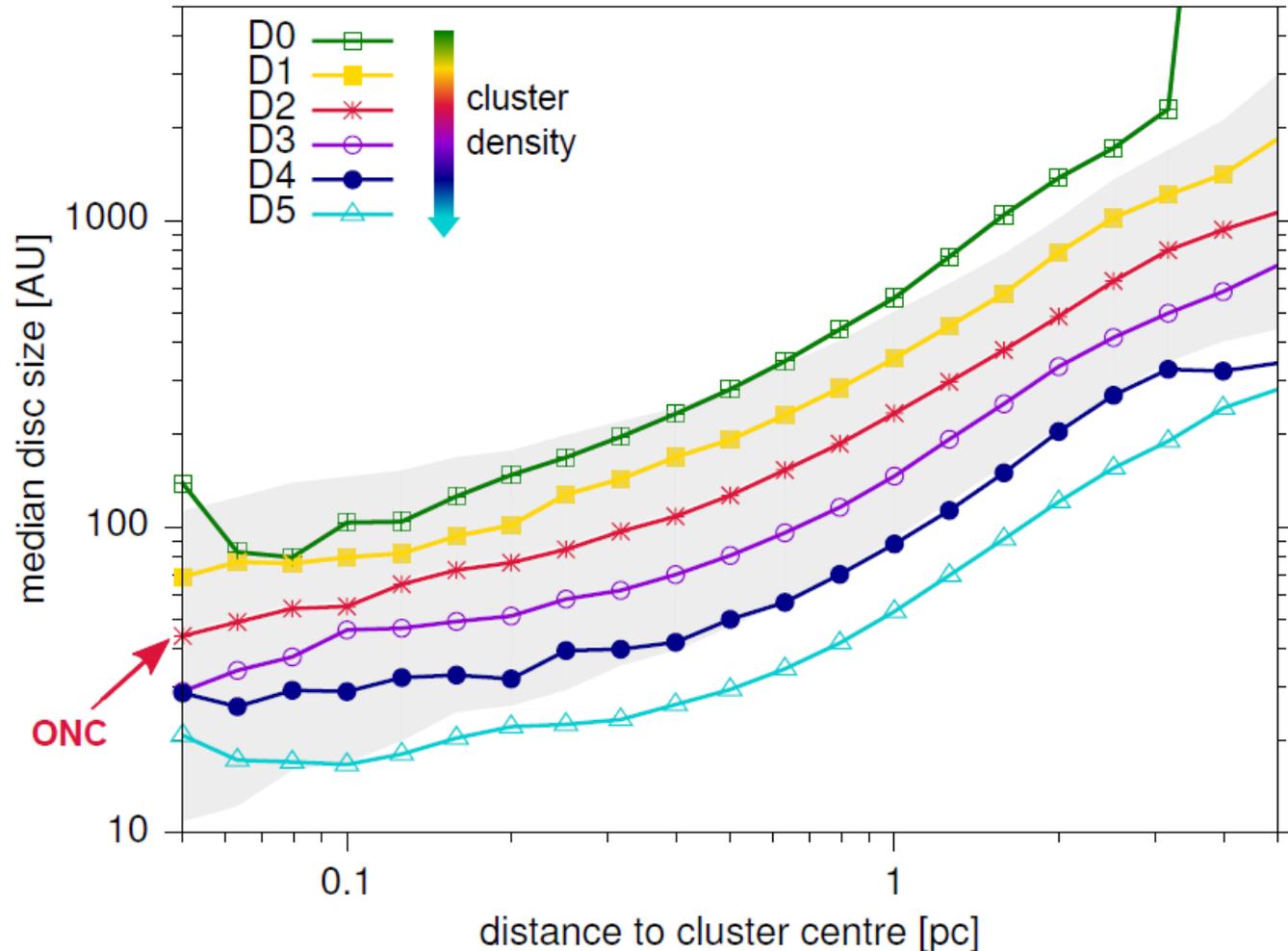
Diagnostic step



Disc sizes in clusters

The Numerical Experiment

- Final disc-size distribution in clusters largely independent of initial disc size.
- **Initial disc size: 10,000 AU.**
- Expected: dependency on density.
- Maybe unexpected: small median disc sizes!
- Why do initial disc sizes play a minor role?
- How many discs smaller than 100 or 1,000 AU?
- How many discs are destroyed?



See you at P7!