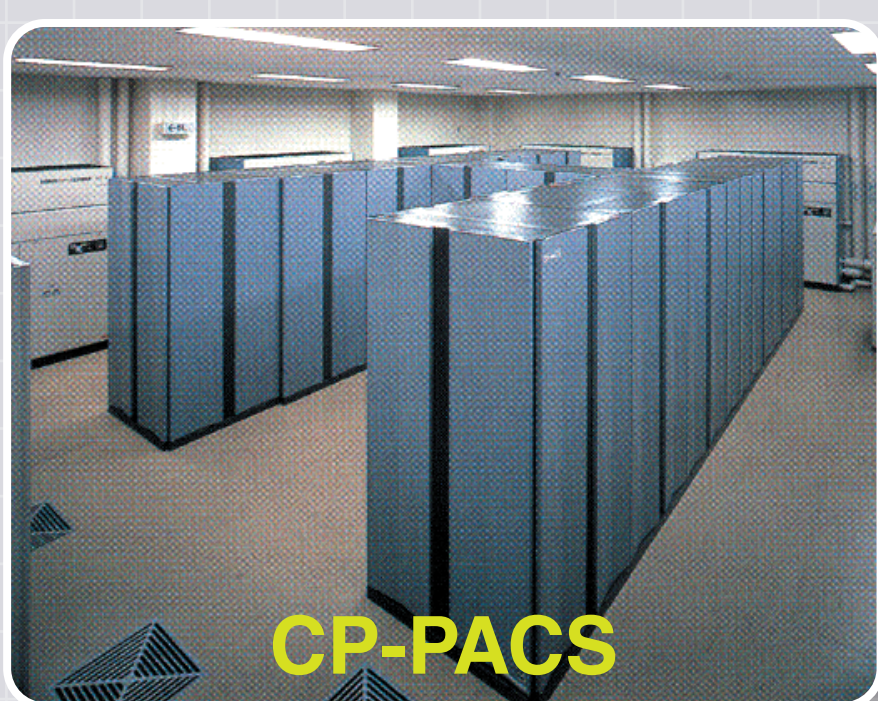




Radiation Hydrodynamics with HMCS

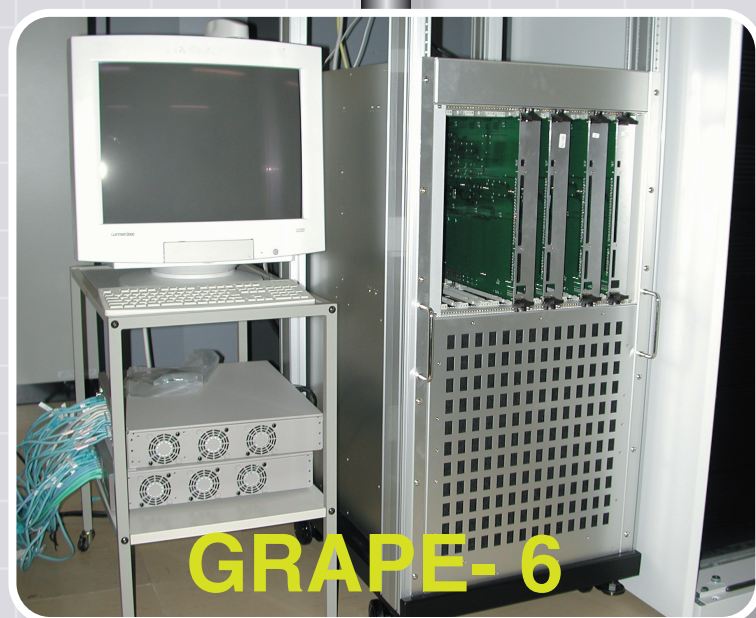
HMCS realizes 3D Radiation Hydrodynamics

- ▶ CP-PACS solves Smoothed Particle Hydrodynamics (SPH) and Radiation Transfer.
- ▶ GRAPE-6 calculates Self-Gravity and returns it to CP-PACS via PAVEMENT/PIO.



CP-PACS

PAVEMENT/PIO



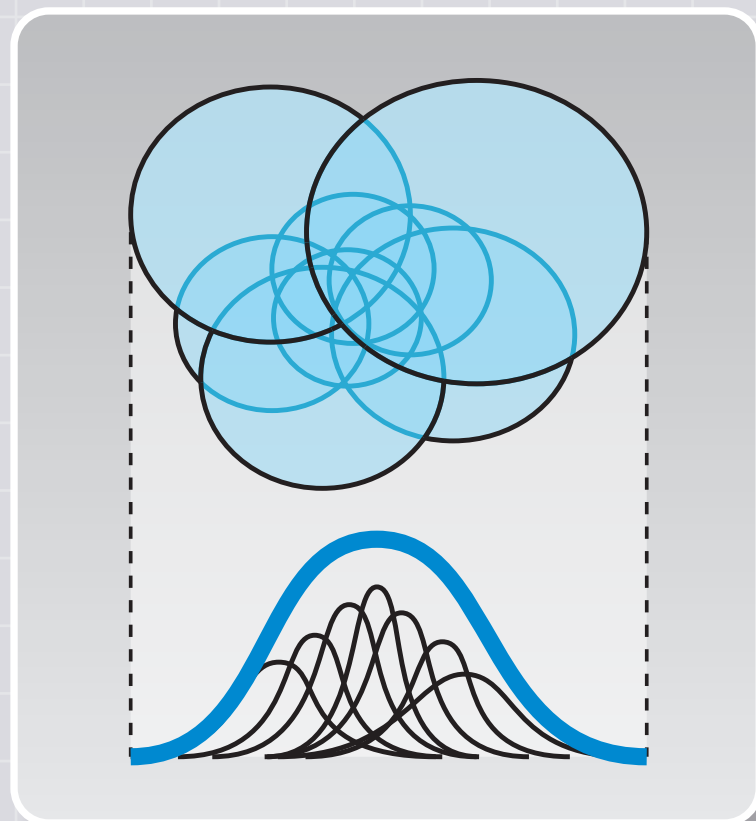
GRAPE-6

3D Radiation Hydrodynamics

Smoothed Particle Hydrodynamics

Radiation Transfer

Direct Summation of Self-Gravity



SPH

- ▶ SPH (Smoothed Particle Hydrodynamics) is a full Lagrange method to treat hydrodynamics in multi-dimension, where physical quantities are expressed by the superposition of smoothed particles with a kernel.

Radiative Transfer with SPH

- ▶ To solve radiation transfer, smoothed particles nearest from a line between a source and a target are traced and the optical depth is assessed by the sum of relevant particles.

