

### ***An analytical model for evaporative cooling***

We have developed an analytical model for evaporative cooling [1]. By simulating evaporation as a sequence of discrete steps, we could predict the time dependence of all important parameters such as temperature, density, elastic collision rate. By incorporating trap loss due to background gas collisions into our model we derived the threshold conditions for “run-away” evaporation. This is characterized by an increase in the rate at which the cloud rethermalizes and ensures efficient evaporative cooling.

1. K.B. Davis, M.-O. Mewes, and W. Ketterle, *Appl. Phys. B* **60**, 155 (1995).