1038-76-156   **Dongho Chae*** (`chae@skku.edu`), Dept. Mathematics, Sungkyunkwan Universty, Changan-gu Cheoncheon-dong 300, Suwon, South Korea. *On the blow-up problem and a priori estimates for the 3D Euler equations.* Preliminary report.

We discuss blow-up rates and the blow-up profiles of possible asymptotically self-similar singularities of the 3D Euler equations, where the sense of convergence and self-similarity are considered in various sense. We extend much further, in particular, the previous nonexistence results of self-similar/asymptotically self-similar singularities. Some implications the notions for the 3D Navier-Stokes equations are also deduced. Generalization of the self-similar transforms is also considered, and by appropriate choice of the transform we obtain new a priori estimates for the 3D Euler and the Navier-Stokes equations. (Received February 06, 2008)