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Hydrodynamic Evolution of the High Baryon Density Matter in High Energy Heavy-Ion Collisions MING LI, JOSEPH KAPUSTA, Univ of Minnesota - Twin Cities, CHUN SHEN, Brookhaven National Laboratory — In high energy heavy-ion collisions, the colliding nuclei pass through each other, leaving behind an almost baryon-free central region. This property of transparency in high energy collisions is different from the nuclear stopping in the low energy collisions. I will argue that very high baryon density (more than ten times larger than the normal nuclear density) can be achieved in the fragmentation regions of high energy heavy-ion collisions. This very high baryon density matter is further assumed to follow hydrodynamic equations in the subsequent space-time evolution. Baryons are found to diffuse from the forward/backward rapidity regions to the mid-rapidity region. I will also talk about the potential relevance to exploring the QCD phase diagram in high energy heavy-ion collisions, which may be an alternative to the low energy Beam Energy Scan program at RHIC.

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