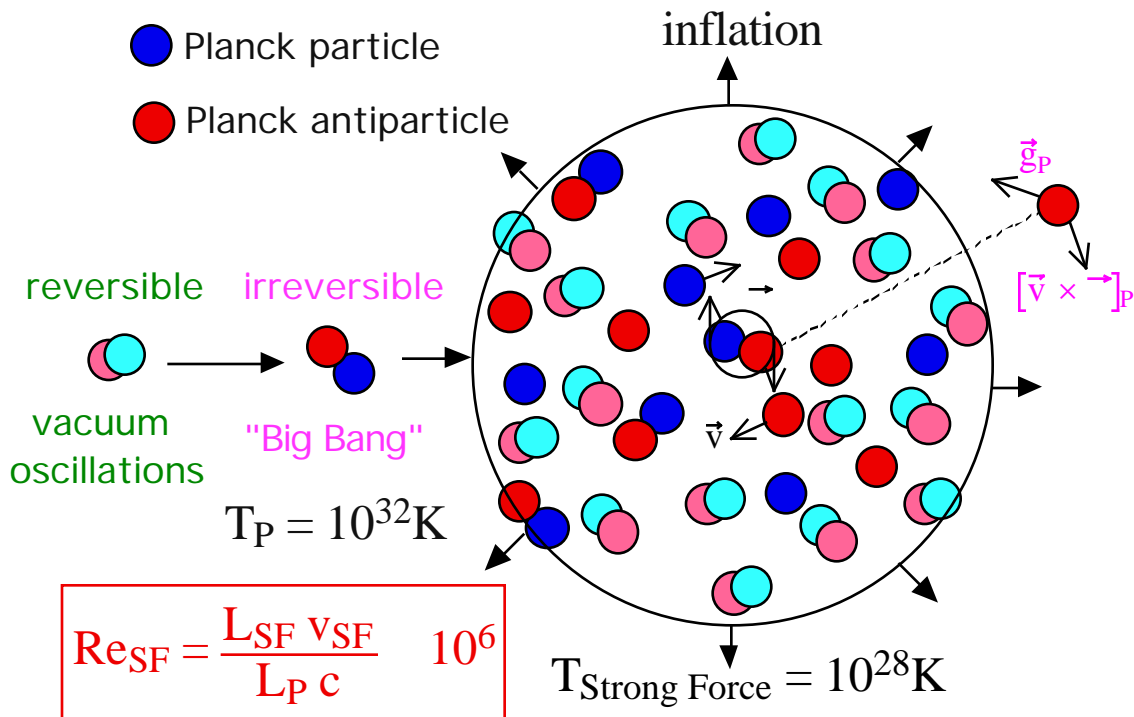


# Big Bang Turbulence



If a Planck particle and Planck antiparticle appear from the vacuum, they can trigger a "Big Bang" cascade of quantum-gravitational-turbulence and space-time-energy production until the temperature cools to the strong force freeze out temperature. The temperature fluctuations are fossilized by inflation of space to scales  $10^{25}$  times larger than their horizon scales  $L_H = ct$  of causal connection (Guth 1997).