1077-35-526   **Jiecheng Chen**, **Dashan Fan** and **Lijing Sun*** (`sun2@uwm.edu`), Department of Mathematical Science, Milwaukee, WI 53201. *Unimodular Fourier Multipliers On Modulation Spaces.* Preliminary report.

Recently, it has been shown that the unimodular Fourier multipliers $e^{it|\Delta|^{\frac{\alpha}{2}}}$ are bounded on all modulation spaces. In this paper, using the almost orthogonality of projections and some techniques on oscillating integrals, we obtain asymptotic estimates for the unimodular Fourier multipliers $e^{it|\Delta|^{\frac{\alpha}{2}}}$ on the modulation spaces. As applications, we give the grow-up rates of the solutions for the Cauchy problems for the free Schrödinger equation, the wave equation and the Airy equation with the initial data in a modulation space. We also obtain a quantitative form about the the solution to the Cauchy problem of the nonlinear dispersive equations. (Received September 06, 2011)