Abstract for an Invited Paper for the HAW09 Meeting of The American Physical Society

Probing Dense Matter via Hadron Properties

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Hadron properties are expected to be modified in hot/dense matter as a consequence of the chiral symmetry restoration. Experimental studies on the modification of hadron mass in dense matter have been performed for the last two decades. The recent results of the experiments searching for the hadron mass modification in nuclear medium are reviewed. I will discuss in detail the KEK-PS E325 experiment reporting the modification of the invariant mass spectra of $\rho, \omega, \phi \to e^+e^-$ measured in p+A reactions. This presentation will also provide an outlook for the capability of the proposed experiments at J-PARC to investigate hadron properties in nuclear matter. The dilepton measurement will be performed to study the nuclear size and velocity dependence of the mass modification systematically. There are also programs to measure the vector mesons in nuclei in exclusive reactions. These different experimental methods will provide an opportunity to study meson properties in nuclear matter in many aspects.