1064-53-57 **Jih-Hsin Cheng*** (`cheng@math.sinica.edu.tw`), Institute of Mathematics, Academia Sinica, Taipei, 11529, Taiwan. *A positive mass theorem in Cauchy-Riemann geometry.*

We define an ADM-like mass, called p-mass, for an asymptotically flat pseudohermitian manifold. The p-mass for the blow-up of a closed pseudohermitian manifold is identified with the constant term in the expansion of the Green function for the CR Laplacian. We deduce an integral formula for the p-mass. We prove the nonnegativity of the p-mass for (the blow-up of) a closed embeddable CR 3-manifold with positive Webster-Yamabe invariant and nonnegative Paneitz-like operator. We show the existence of nonembeddable CR 3-manifolds having nonpositive Paneitz-like operator through a second variation formula. We also discuss the zero p-mass situation, the relation to the CR Yamabe problem, and the higher dimensional case of spherical CR manifolds. (Received August 24, 2010)