1126-65-262   **Fidele Ngwane*** (`ngwanef@mailbox.sc.edu`), 807 Hampton Street, Walterboro, SC 29488, and **Samuel Jator** (`jators@apsu.edu`), 601 College Street, Clarksville, TN 37044. *A trigonometrically-fitted second derivative extended backward differentiation formula for solving oscillatory Hamiltonian systems.*

We construct a trigonometrically-fitted continuous second derivative extended backward differentiation formula whose coefficients are functions of the frequency and the step size. The continuous form is used to construct a trigonometrically-fitted block second derivative extended backward differentiation formula for numerically integrating oscillatory Hamiltonian systems in a block-by-block fashion. The convergence and stability properties of the method are discussed and numerical examples are presented to illustrate the accuracy of the method (Received January 16, 2017)