H_eff eigenstates at N=100, $\varepsilon_2^{}=$ 9.0

 $arepsilon_1=0.0$, n=0, E=-81.8 $arepsilon_1=0.0$, n=1, E=-81.8 $arepsilon_1=0.0$, n=2, E=-47.8 $arepsilon_1=0.0$, n=3, E=-47.8 $arepsilon_1=0.0$, n=4, E=-18.8