tec 5. A nuclear physicist wants to check the conservation of energy in a certain nuclear reaction and measures the intitial and final energies to be $E_i = 130 \pm 4\,\text{Mev}$ and $E_f = 145 \pm 8\,\text{MeV}$, respectively, where both uncertainties are the standard deviations of the answers. Is this discrepancy significant (at the 5% level)? If energy is not conserved, this is a big deal and were it true, would change dramatically our view of the universe.