

$$+\frac{8\pi}{T_2}\left[\frac{\pi^2}{90}+\frac{\zeta(3)}{2\pi U_2}+\sum_{m>0}\frac{\sigma_3(m)}{m^2}\left(1+\frac{1}{2\pi mU_2}\right)(q_U^m+\bar{q}_U^m)\right]$$