What this code is about

The C++ file constant.cpp solves the system of $d+1$ linear equations for the first $d+1$ expansion coefficients c_m

$$\mu_n = \sum_{m=0}^{d} c_m \, P(n,m) \tag{1}$$

where the matrix $P(n,m)$ is given by

$$P(n,m) = m! 2^{n-\nu+1} \sum_{k=0}^{m} \frac{(-2)^k \Gamma(n+k-\nu+1)}{(k!)^2 (m-k)!}. \tag{2}$$

In the case of the quartic anharmonic oscillator,

$$b^{(k+1)} = (-1)^k \mu_k = (-1)^k \int_0^\infty x^k \rho(x) \mathrm{d}x \tag{3}$$

for $k = 0, 1 \ldots$, where $b^{(k+1)}$ are the coefficients of the weak-coupling perturbation expansion for the ground-state energy,

$$E^{(2)}(\beta) = 1 + \sum_{k=1}^{\infty} b^{(k)} \beta^k. \tag{4}$$

The file compile.job is a SLURM script to compile the code in an HPC and generate an executable.

The file together.job is a SLURM script to run the executable in an HPC.