T-MATRIX IN DISCRETE OSCILLATOR REPRESENTATION

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S u m m a r y

We investigate T-matrix for bound and continuous-spectrum states in the discrete oscillator representation. The investigation is carried out for a model problem – the particle in the field of a central potential. A system of linear equations is derived to determine the coefficients of the T-matrix expansion in the oscillator functions. We selected four potentials (Gaussian, exponential, Yukawa, and square-well ones) to demonstrate peculiarities of the T-matrix and its dependence on the potential shape. We also study how the T-matrix expansion coefficients depend on the parameters of the oscillator basis such as the oscillator length and the number of basis functions involved in calculations.