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Partition function of improved Tietz oscillators

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Abstract. We present a closed-form expression of the vibrational partition function for the improved Tietz potential energy model. The vibrational partition functions for the improved Manning-Rosen potential and improved Rosen-Morse potential are easily deduced as two special cases. The obtained results are applicable to many issues in chemical physics and engineering.

Keywords: Partition function; Improved Tietz potential energy model; Thermochemistry

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