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An analytical potential function for stable diatomic molecules

By: [Uddin, Z](#) (Uddin, Zaheer)^[1,2,4]; [Saeed, M](#) (Saeed, M.)^[2]; [AbdulHafith, EH](#) (AbdulHafith, Esam H.)^[1]; [Siddiqui, KA](#) (Siddiqui, Khursheed A.)^[3]

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Abstract

We propose an analytical five-parameter potential function for stable diatomic molecules $V(x) = K/x(3) - e^{-tx}(a + bx + cx(2))$. Here $x=r/r(e)$, where r is the internuclear distance and r_e the equilibrium bond length. K, t, a, b, c are five parameters of the function, which are obtained from molecular spectroscopic data in terms of known molecular constants. (C) 2012 Physics Essays Publication. [DOI: 10.4006/0836-1398-25.4.540]

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