Nuclear Barrier Height a Variable Potential Wave Due to Nuclear Vibrations STEWART BREKKE, Northeastern Illinois Universiy (former grad student) — Because the nucleus is vibrating, It is repeatedly changing position thereby causing the coulomb barrier height to vary over time. If the nucleus is considered as a point charge and vibrating, the distance between the nucleus and an incoming positive charge is repeatedly changing. The distance to the nucleus from an incoming charge is $r + A\cos 2\pi ft$. Therefore the nuclear barrier height is given by $KE = kQ_1Q_2/(r + A cos 2\pi ft)$, where A is the average amplitude of nuclear vibration. If $RMS cos = 0.707$, and $r = 0$ at the point of contact of an incoming charge, the average nuclear barrier height is given by $KE = kQ_1Q_2/0.707A$.

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