

Abstract Submitted  
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**Alpha, Proton and Ion Decay Made Possible by Variable Nuclear Barrier Heights** STEWART BREKKE<sup>1</sup>, Northeastern Illinois University(former grad student) — In a previous soon to be revised paper due to nuclear vibration the Coulomb barrier height was found to be a variable with a value given by KE needed  $= kQ(1)Q(2)/[12A^2\cos^2\pi ft]^{1/2}$ . The range of the Coulomb barrier height was infinitely high to a low of  $kQ(1)Q(2)/2[3]^2$  with an RMS value of  $kQ(1)Q(2)/(6)^{1/2}$  when using a three dimensional nuclear oscillator for the motion of the nucleus. Since the value of the Coulomb barrier varies with time and amplitude of nuclear motion, the wall of the nuclear well and Coulomb barrier can be high and low. As the decaying particle such as an alpha, proton, or ion bounces against the nuclear wall, when the wall of the nuclear well and Coulomb barrier are sufficiently low at the same time nuclear decay can takeplace. This combination can be extremely fast or extremely slow. This physical phenomenon accounts for nuclear decay without the artifice of tunneling.

<sup>1</sup>previous paper on variable nuclear barrier heights

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