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Decrease in Coulomb Barrier Height Due to Nuclear Vibration allowing solar Nuclear Reactions w/o Tunnelling STEWART BREKKE[1], Northeastern Illinois University (former grad student) — The fusing of two protons in the proton-proton is problematic because the interior temperature of the sun would not provide enough thermal energy to overcome the Coulomb barrier electric repulsion between two protons. The artifice of "tunnelling" is used to explain the proton-proton reaction. In a previous paper low energy nuclear reactions were explained as possible provided nuclear vibration is conisdered thereby lowering the Coulomb barrier.The vibration adjusted formula is KE needed = $kQ(1)Q(2)/[12A^2\cos^{22}\backslash pift]^2]$. The coulomb barrier is then maximum as infinite, minimum $kQ(1)Q(2)/2(3)^{1/2}A$ with an RMS value of $kQ(1)Q(2)/(6)^{1/2}A$.The great amount of thermal energy on the sun increases the amplitude of vibration thereby lowering the height of the Coulomb barrier dramatically. This increased nuclear vibration makes nuclear reactions such as the proton- proton cycle viable. The need for the artifice of "tunnelling" is thereby eliminated.

[1]previous paper on variable nuclear barrier heights

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