

Meeting: 1003, Atlanta, Georgia, MAA CP X1, MAA General Contributed Paper Session, I

1003-X1-740 **Sohang Chander Gandhi*** (sohang_gandhi@yahoo.com), 509 Misty Oaks Run, Casselberry, FL 32707. *Inverse Scattering: Inversion of Gamow's Formula.*

Classically it is impossible for a particle to penetrate a potential barrier exceeding its energy. In quantum mechanics, however, there is always a finite probability for such an occurrence. The transmission probability is given by Gamow's formula:

$$T(E) = \exp\left(-\frac{1}{\hbar} \int_{x_1(E)}^{x_2(E)} \sqrt{E - V(x)} dx\right), \quad (1)$$

where $V(x)$ is the potential, E is the energy of the particle, and x_1 and x_2 are the classical reflection points at which $V(X) = E$. $T(E)$ can, often, easily be obtained through experiment. However, the task of determining $V(x)$ is often more difficult. Hence, the inversion of equation (1) would provide a tool for probing physical structure. Procedures for doing so and results obtained shall be discussed. (Received September 28, 2004)