

2.3: Simple Example

We can define all these concepts (velocity, momentum, potential) in one dimension as well as in three dimensions. Let us look at the example for a barrier

$$V(x) = \begin{cases} 0 & |x| > a \\ V_0 & |x| < a \end{cases} \quad (2.3.1)$$

We can't find a solution for E less than 0 (no solution for v). For energy less than V_0 the particles can move left or right from the barrier, with constant velocity, but will make a hard bounce at the barrier (sign of v is not determined from energy). For energies higher than V_0 particles can move from one side to the other, but will move slower if they are above the barrier.

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