

Supplemental form QM001

It all about the "H" ...then the Ψ ...and the energy if free for the taking!

$$H\Psi = E\Psi$$

Complete the table below for each of the boundary conditions stated.

| <i>Hamiltonian (useable form)</i> | <i>Wavefunction (normalized)</i> | <i>Quantized Energy</i> |
|-----------------------------------|---|-------------------------|
| <i>Translational (1D)</i> | $\Psi(x) =$ | |
| <i>Translational (3D)</i> | $\Psi(x, y, z) =$ | |
| <i>Vibrational</i> | $\Psi(x) =$ | |
| <i>Rotational (2D)</i> | your answer will contain the term H, | |
| <i>Rotational (3D)*</i> | $\Psi(\theta, \phi) =$ Spherical harmonics (no need to answer further) | |