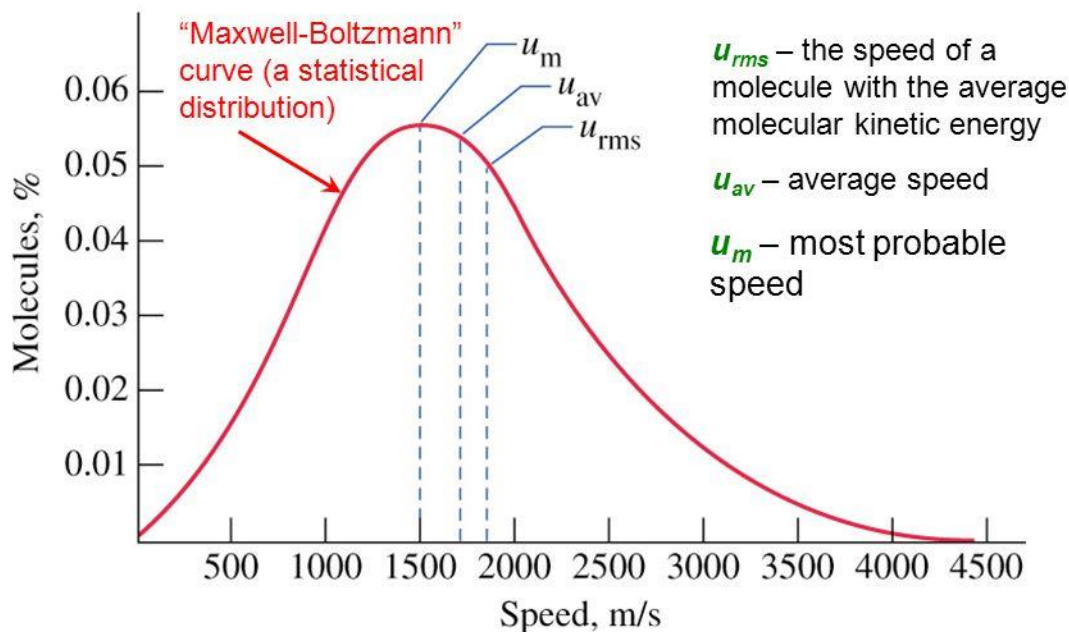


Question:

Using a suitable diagram, explain the most probable speed, the average speed and the root mean square speed.

Answer:

Distribution of Molecular Speeds



The most probable speed, u_m , is the speed most likely to be possessed by any molecule (of the same mass m) in the system.

The average (mean), u_{av} , speed is the expected value of the speed distribution.

Root mean square speed is the measure of the speed of particles in a gas which is most convenient for problem solving within the kinetic theory of gases. It is defined as the square root of the average velocity-squared of the molecules in a gas.