
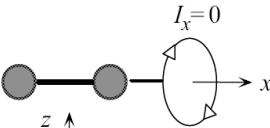
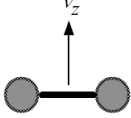
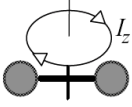
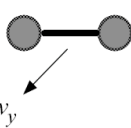
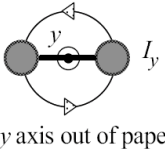
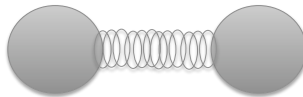


TRANSLATIONAL MOTION	ROTATIONAL MOTION	
		
		
		
$E = \frac{1}{2} m \overline{v_x^2} + \frac{1}{2} m \overline{v_y^2} + \frac{1}{2} m \overline{v_z^2} + \frac{1}{2} I \overline{\omega_y^2} + \frac{1}{2} I \overline{\omega_z^2} = \frac{5}{2} kT$		
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What about vibration?

- Potential energy: $\frac{1}{2} \kappa (r-r_0)^2$
- Vibrational velocity: $\frac{1}{2} m (dr/dt)^2$



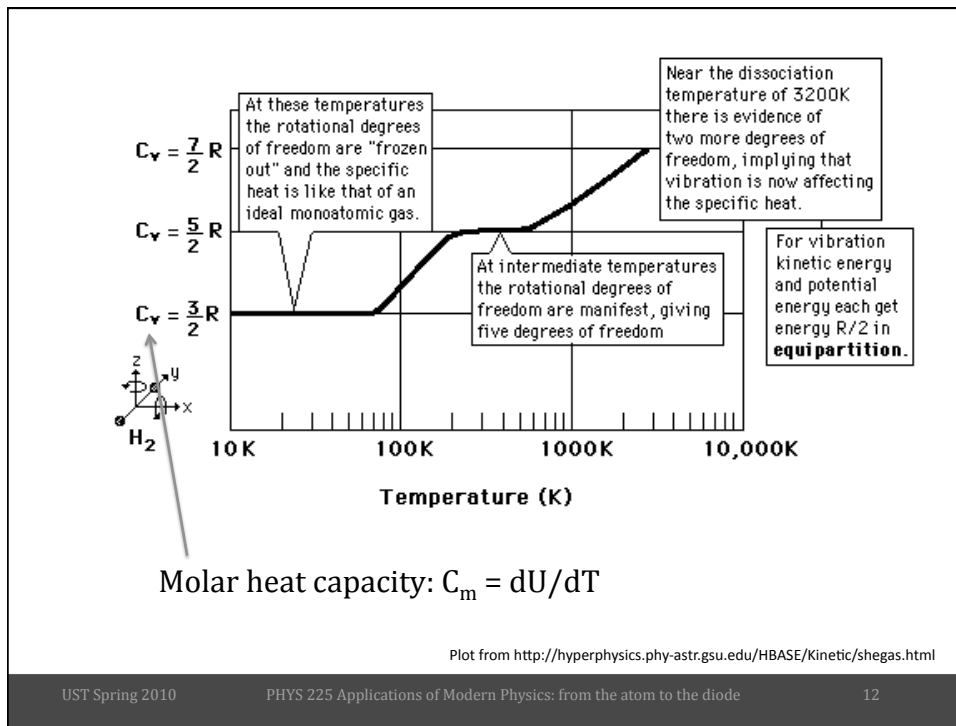
- Then $E = 7/2 kT$

What is the total internal energy of a mole of a monatomic gas?

- A) kT
- B) $(3/2)kT$
- C) $N_A kT$
- D) $(3/2)N_A kT$

What is the molar heat capacity of a monatomic gas?

- A) k
- B) $(3/2)k$
- C) $N_A k$
- D) $(3/2)N_A k$



If we model a solid as atoms connected by springs, how many degrees of freedom do the atoms in a solid have?

- A) 0
- B) 3
- C) 6
- D) ???

