

Quiz 18.2 – Reaction Dynamics

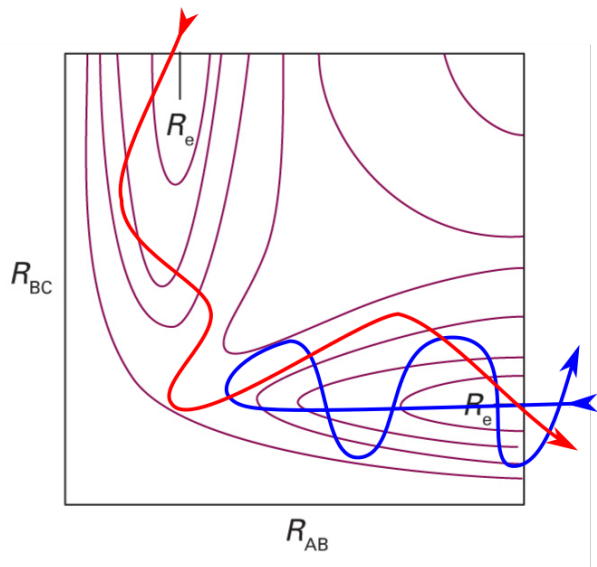
Name: _____

Molecular Beam Experiments

List the three factors which determine the scattering angle of a molecular beam.

- 1.
- 2.
- 3.

One of these factors is controlled in an experiment, one is the independent experimental variable, and determining one of them is often the goal of an experiment. Indicate which is which.

Reactions and Potential Surfaces

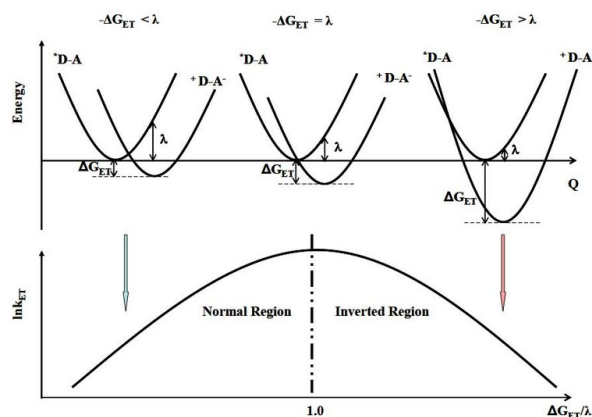
At left is a modified version of Figure 18D.12 from our textbook.

- In the two limits marked R_e , draw the atomic configuration of the system. Label the H atoms A, B, and C.
- Two different trajectories are marked, in blue and red. Describe what is happening on the microscopic level in each of the trajectories

Electron Transfer (Marcus Theory)

At right is a diagram similar to figure 18E.1 from our textbook, showing three different regimes for electron transfer.

- Which diagram represents a system where electron transfer occurs at the stretched phase of a vibration?
- Which diagram represents a system where electron transfer occurs at the compressed phase of a vibration?
- Which diagram represents a system where electron transfer occurs most rapidly in the vibrational ground state?
- Which system will be most vibrationally activated after electron transfer?



When You See Water

By Alice Walker

When you see water in a stream
you say: oh, this is stream
water;
When you see water in the river
you say: oh, this is water
of the river;
When you see ocean
water
you say: This is the ocean's
water!
But actually water is always
only itself
and does not belong
to any of these containers
though it creates them.
And so it is with you.