

Unit 10 - Ab Initio Molecular Dynamics of Photochemistry and Photophysics – Part 2

Course outline

How to access the portal?

Introduction and Mathematical Representation

Nonlinear Effects

Dispersion Effects and Transverse Electromagnetic Mode

Construction of Ultrafast Laser and Measurement of Pulses

Measurement Techniques in Ultrafast Spectroscopy, and their kinetic and quantum mechanical models

Ultrafast Processes in Physical Chemistry – Photophysics, Photochemistry, Solid State, Transition Metal Complexes and Biomolecules

Maxwell's Equations

Ab Initio Molecular Dynamics of Photochemistry and Photophysics – Part 1

Ab Initio Molecular Dynamics of Photochemistry and Photophysics – Part 2

Ab Initio Molecular Dynamics 3

Ab Initio Molecular Dynamics 4

Quiz : Assessment week 9

Attosecond Chemical Dynamics – Theoretical Point of View

Attosecond Chemical Dynamics – Experimental Point of View

Femtochemistry of Nanocatalysis

Assessment week 9

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-10-02, 23:59 IST.

1) What is the natural timescale of nuclear motion?

1 point

- femtosecond
 microsecond
 nanosecond
 attosecond

No, the answer is incorrect.
Score: 0

Accepted Answers:
femtosecond

2) Under harmonic oscillator approximation, ground vibrational state represents?

1 point

- a Gaussian
 an exponential
 a linear
 a quadratic function.

No, the answer is incorrect.
Score: 0

Accepted Answers:
a Gaussian

3) What is the natural timescale of electronic motion?

1 point

- femtosecond
 microsecond
 nanosecond
 attosecond

No, the answer is incorrect.
Score: 0

Accepted Answers:
attosecond

4) Does reaction rate depend on the temperature?

1 point

- Yes, it increases with temperature
 No, it does not
 Yes, it decreases with temperature
 It increases only if activation energy is changing as a function of temperature.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Yes, it increases with temperature

5) How many normal modes of vibration are assigned to the reaction coordinate in the transition state theory (TST)?

1 point

- 3
 2
 1
 0

No, the answer is incorrect.
Score: 0

Accepted Answers:
1

6) What was the time resolution achieved in the first flash photolysis experiments performed by Porter?

1 point

- fs
 μ s
 ns
 ps

No, the answer is incorrect.
Score: 0

Accepted Answers:
 μ s

7) Who was awarded chemistry Nobel prize in 1967 for studying fast chemical reactions in microsecond time resolution?

1 point

- A. Zewail
 Porter
 Einstein
 Evans

No, the answer is incorrect.
Score: 0

Accepted Answers:
Porter

8) Who was awarded chemistry Nobel prize in 1999?

1 point

- A. Zewail
 Porter
 Einstein
 Evans

No, the answer is incorrect.
Score: 0

Accepted Answers:
A. Zewail

9) What is the spin multiplicity of a quartet state?

1 point

- 2
 3
 4
 5

No, the answer is incorrect.
Score: 0

Accepted Answers:
4

10) What is the spin multiplicity of O₂ in its ground state?

1 point

- 2
 3
 4
 5

No, the answer is incorrect.
Score: 0

Accepted Answers:
3

You were allowed to submit this assignment only once.