

ORGANIC CHEMISTRY 1 LECTURE GUIDE 2019

BY RHETT C. SMITH

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# Organic Chemistry 1 Lecture Guide 2019

By Rhett C. Smith, Ph.D.

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Companion Books from the Proton Guru:

*Organic Chemistry 1 Reactions and Practice Problems 2019*

by Rhett C. Smith

*Organic Chemistry 1 Primer 2019,*

by Rhett C. Smith, Andrew G. Tennyson, and Tania Houjeiry

Molecules absorb energy:

Ⓐ

Leading to:

Ⓑ

Expressing energy:  $E = h\nu = \frac{hc}{\lambda}$

wavenumber ( $\tilde{\nu}$ ):

Ⓒ

Larger wavenumbers =

Ⓓ

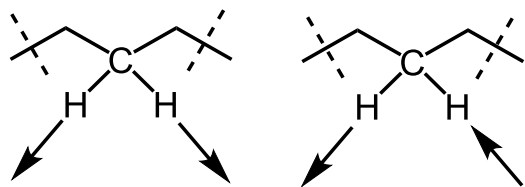
Notes

## Lecture Topic VII.3. Interaction of Infrared Light with Molecules

### Vibrational modes; stretching modes and bending modes

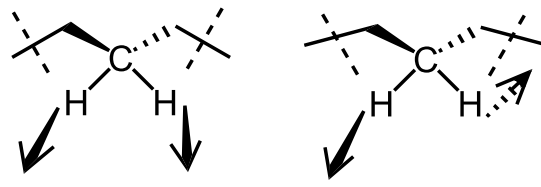
Bonds can vibrate in different ways, and each of these **vibrational modes** requires a different energy:

#### Stretching modes



(A)

#### Out-of-plane bending modes



(B)

#### In-plane bending modes



(C)

(D)

Notes