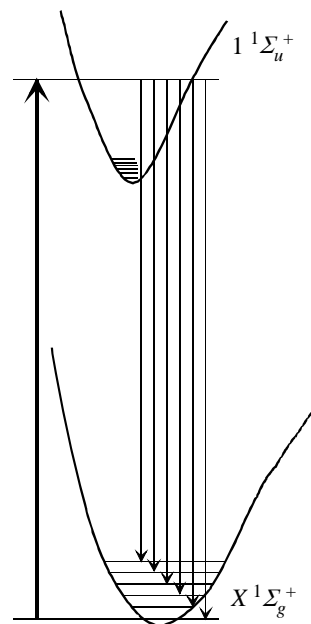
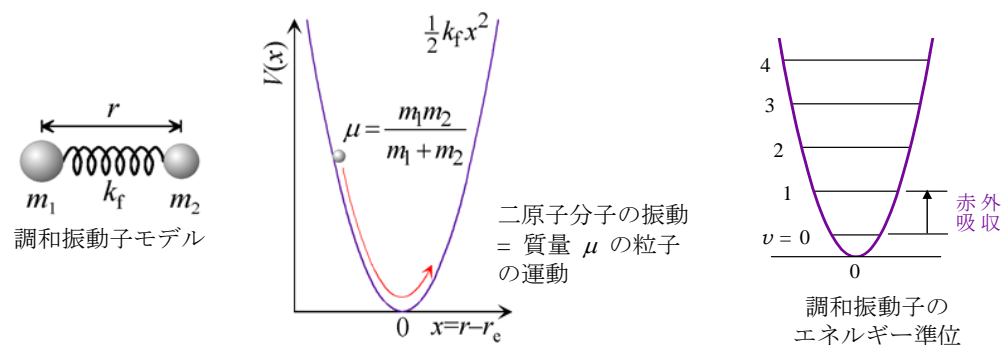


## 3.1

Cl<sub>2</sub> 励起状態の発光スペクトル

出典: J. Wörmer *et al.*, *Z. Phys.* **D7**, 383 (1988).



## 3.3

二原子分子の赤外吸収  $\text{cm}^{-1}$  ( $\mu\text{m}$ )

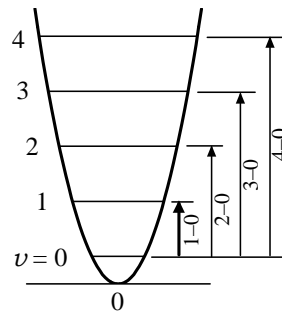
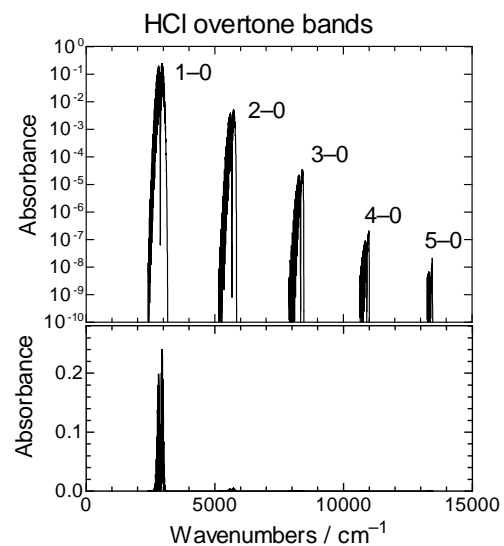
HCl	2886 (3.47)
NO	1876 (5.33)
CO	2143 (4.67)

ばね定数  $k_f$  と結合次数  $n$ , 結合解離エネルギー  $D$ 

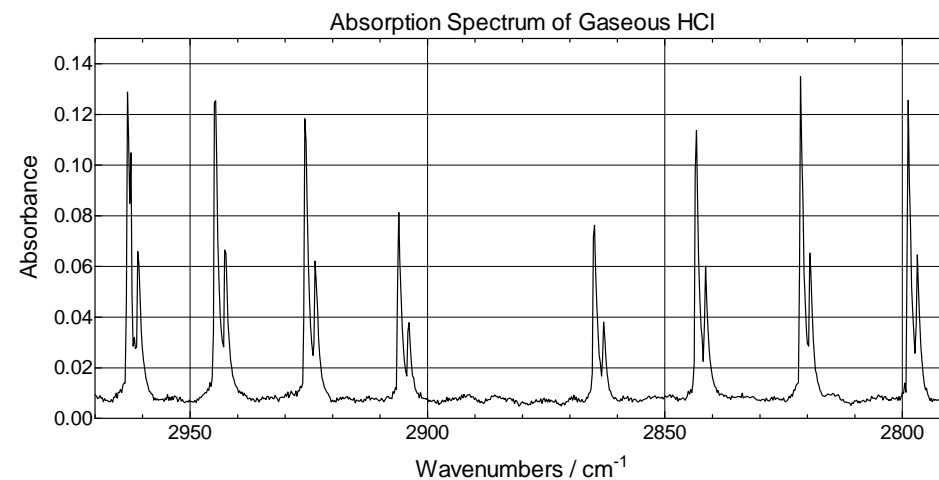
	$k_f / \text{N m}^{-1}$	$n$	$D / \text{kJ mol}^{-1}$
HBr	384	1	366
Cl <sub>2</sub>	318	1	243
O <sub>2</sub>	1139	2	498
NO	1548	2.5	632
CO	1855	3	1076
N <sub>2</sub>	2241	3	945

## 3.2

## HCl の倍音バンド

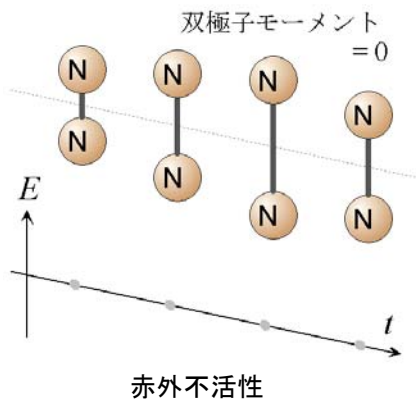
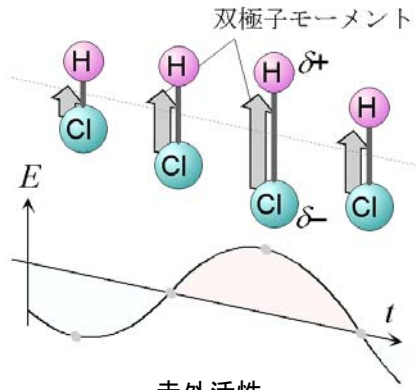


## 3.4

H<sup>35</sup>Cl と H<sup>37</sup>Cl の赤外吸収スペクトル

4.1 赤外(光学)遷移の古典的解釈

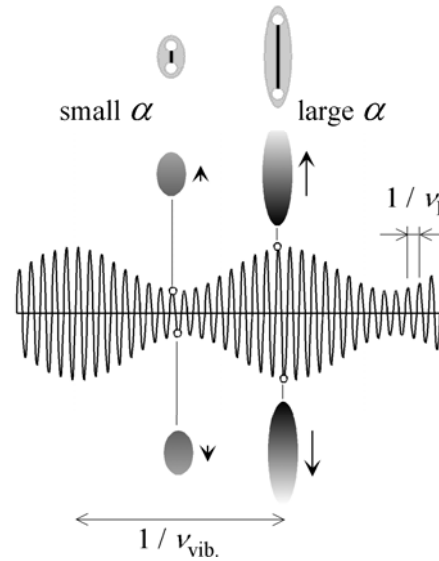
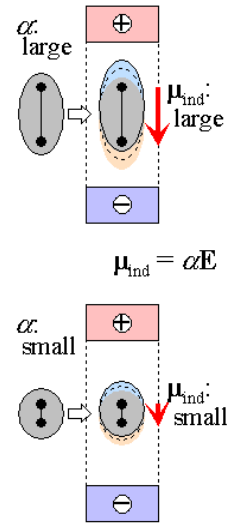
赤外(光学)遷移  
= 双極子による遷移



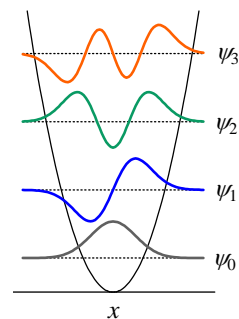
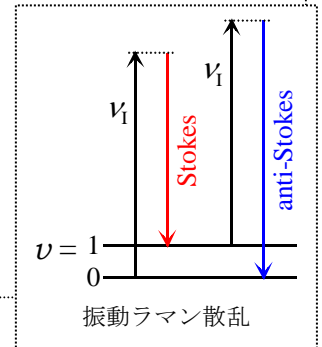
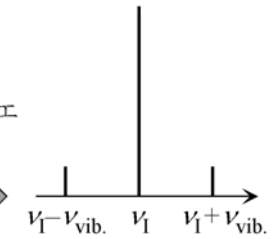
4.2 ラマン散乱の古典的解釈

ラマン散乱 = 分極率による遷移

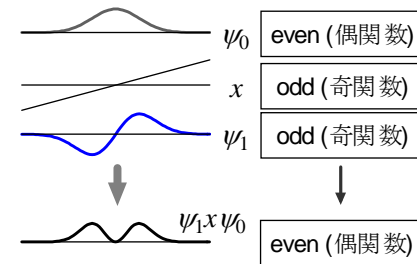
分極率



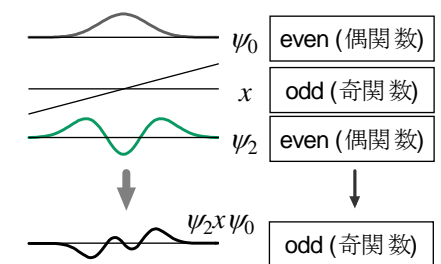
フーリエ変換



振動波動関数 (調和振動子)



(a) 許容遷移 (ν = 1 ↔ 0)



(b) 禁制遷移 (ν = 2 ↔ 0)