

### **Rice–Ramsperger–Kassel–Marcus (RRKM) theory**

An improved form of *Rice–Ramsperger–Kassel (RRK) theory* in which account is taken of the way in which the various normal-mode vibrations and rotations contribute to reaction, and allowance is made for the zero-point energies. In this theory the energy  $\varepsilon^*$  in an energized molecule is classified as either active,  $\varepsilon^{*\text{active}}$ , or inactive,  $\varepsilon^{*\text{inactive}}$ . The rate depends upon  $P(\varepsilon^{*\text{active}})/N(\varepsilon^*)$ , where  $N(\varepsilon^*)$  is the density of states having energy between  $\varepsilon^*$  and  $\varepsilon^* + d\varepsilon^*$ , and  $P(\varepsilon^{*\text{active}})$  is the sum of the active quantum states of the activated complex. This extension of RRK theory brings it in line with *transition-state theory*.

1996, 68, 186