Advanced Physical Chemistry II

HW Part II

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28 The Rate of a Bimolecular Gas-Phase Reaction

15,18,21,22,23,27,28,29,30,32,33,34,37,43,44

28-15 For monatomic gas,

$$\gamma = \frac{5}{3} \tag{28.1}$$

thus

$$u_{\text{peak}}(\text{He}) = \sqrt{\frac{2 \times 8.3145 \times 300}{0.004003}} \sqrt{\frac{5/3}{5/3-1}} = 1765\,\text{m/s} \tag{28.2}$$

$$u_{\text{peak}}(\text{Ne}) = \sqrt{\frac{2 \times 8.3145 \times 300}{0.02018}} \sqrt{\frac{5/3}{5/3-1}} = 786.1\,\text{m/s} \tag{28.3}$$

28-18

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28-22

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28-30

28-32

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28-37

28-43

28-44

28-extra