

Physical Chemistry Cumulative Exam

May 3rd, 2018

Topic: solid structure

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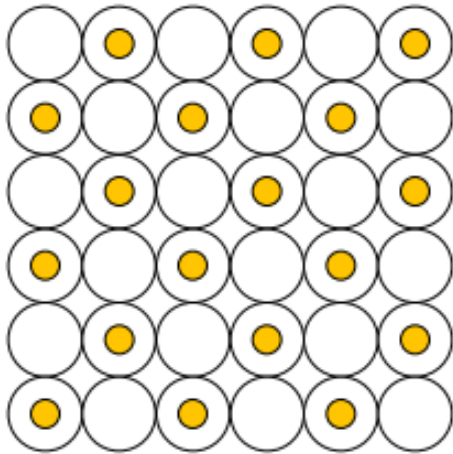
(1) i: (10 points) Sketch the BCC(002) surface (as viewed from along the surface normal).

ii: (15 points) On your sketch of the surface, label the [100], [010], [001], [110] and [210] directions.

iii: (15 points) If the dimension of the bulk unit cell (BCC), $a_0 = 3.16 \text{ \AA}$, What is the nearest neighbor distance? What is the nearest neighbor distance (in $\text{atoms}\cdot\text{cm}^{-2}$) for the BCC(002) surface?

(2) Give the Low Energy Electron Diffraction pattern for the following adsorbate structures:

(30 points) FCC(100) Surface:



(30 points) FCC(110) Surface:

