

## Exercise 2.1-3

### Calculate Formation Entropies

Illustration



*Calculate the formation entropy* for a simple cubic crystal.

- Assume that there are two kinds of springs holding the atoms together: Springs between next neighbors, and springs between second next neighbors.
- Look at the resonance frequency as a function of the spring constant  $D$  (make some assumptions about the spring constant  $D_2$  of the second-next-neighbor spring in terms of the spring constant  $D_1$  of the next neighbors).



Calculate the formation entropy first by only considering the  $D_1$  springs; than consider the  $D_2$  springs, too.



Link to the [Solution](#)