MS2040\_01 Introduction to crystal structures and diffraction theories

Homework #3 Due: 10/23 after class

You are encouraged to organize a study group to solve the problem set.

Using solid circle (•) and open circle (🞅) to represent the motif (or basis, or molecules) above and below the stereographic plane, respectively.

Mark the chirality of all the motifs in the following drawings.

1. (a) Draw the stereogram for the trigonal system 3 (symmetry operation of 3 fold rotation). Also, draw the symmetry elements within the stereogram. Draw the stereogram for symmetry operation (b) 32, (c) $\overbar{3}2$, and (d) 32 + inversion and the corresponding symmetry elements within the stereograms.

After the symmetry operations, check to see whether you should rename the point group accordingly.

2. The same as problem 1 for symmetry operation 23 + 2 + inversion. Also do the symmetry operation for *m*3*m* (Hint: this is cubic system). Please draw the stereogram step by step!