Q & A for Hwk 2

1.It was said in the lecture that IPF is plotting sample directions in the reference frame of crystal coordinates. So, what does the directions like {001},{101},{111} in an IPF mean? Are they sample directions?
These are the labels of the crystal reference frame, exactly as stated. We could certainly make a circular plot with labels crystal-x, crystal-y and crystal-z, but, as explained in class, we typically limit the plot to the fundamental zone of directions, which is the "standard stereographic triangle" or SST.

2.And what does plot an IPF for direction "ND" mean? Does that mean it's a stereographic projection of the sample {001} direction? And the symmetry now (if for a rolled plate) is only 222? But from the lecture it seems that we still need the crystal symmetry in IPF. I'm confused about this. I thought if there is h'=g^-1*O*h (O is the sample symmetry operation) in PF, then there should be h'=g*Os*h (Os is the sample symmetry operation) in IPF and no crystal symmetry should be included in an IPF.
"ND" signifies the sample-Z direction. It expands to "Normal Direction" which applies to either the rolling plane normal or to the normal to a thin film.

3.It is understandable that if I want to draw a PF of {111}, I will get several intensities on a plot that means {111}. But when I'm drawing an IPF of ND (or {001}), why will other directions appear on my map?
First of all, a pole figure (PF) and an inverse pole figure (IPF) are very different. As mentioned in class, a PF plots a chosen crystal direction with respect to the sample frame. As mentioned in class, a PF plots a chosen sample direction with respect to the crystal frame. Therefore, whenever one chooses a different direction to plot, the appearance of the plot changes.