## Lab 12: Indentor tests and hardness

The purpose of this lab is to investigate mineral hardness more quantitatively than the Mohs Hardness Scale. To do this, we will use an indentor microscope, and calculate the hardness for a variety of minerals.

1) Using the Knoop method, determine the Knoop hardness of:

a) talc
b) gypsum
c) calcite
d) fluorite
e) apatite
f) plagioclase
g) quartz

Make a plot of the Knoop hardness vs. the Mohs hardness for each of these minerals. Also include topaz (Knoop Hardness = 1250 ), corundum(Knoop Hardness = 2000 ), and diamond (Knoop Hardness = 8000 ) on your plot.

2) The quartz sample you examined in question 1 has been cut parallel to the basal plane (perpendicular to the C axis). Measure the Knoop hardness of this sample every $30^{o}$ (by rotating the sample), and comment on what you observe.

3) We found this mineral specimen, but are not sure what it is. Measure the Knoop hardness of this mineral, and make a prediction as to what it might be.