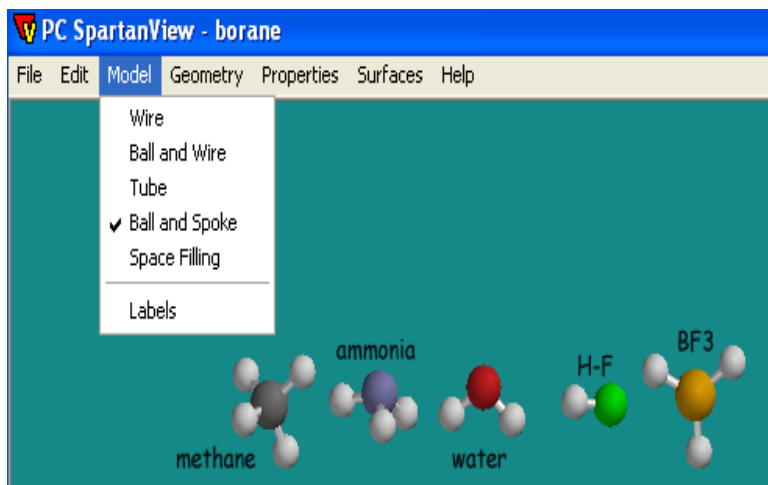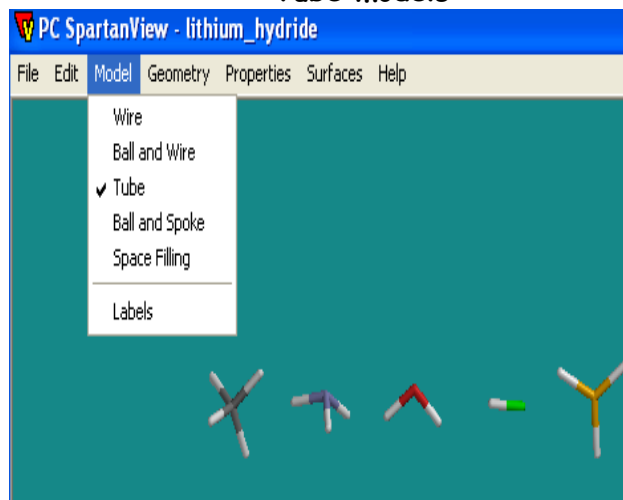## Use the Model menu to select the type of model:

Ball and Spoke models
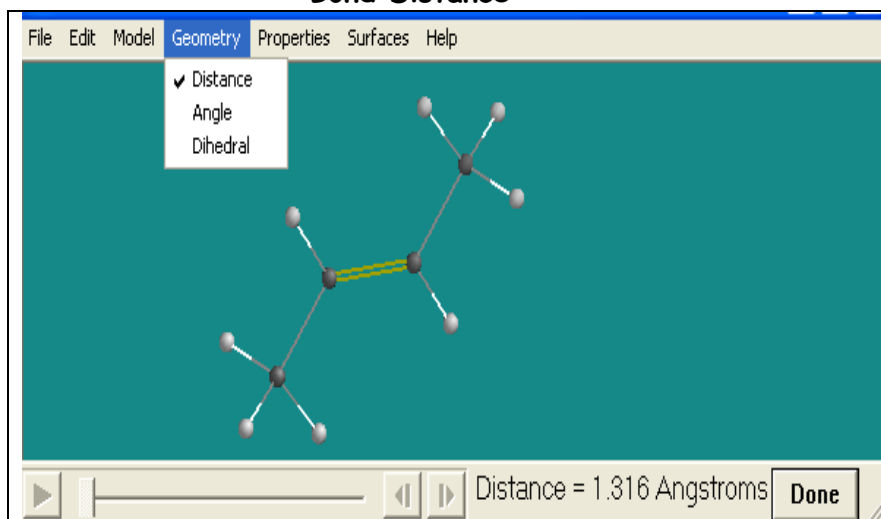

Tube models

Use the Geometry menu to examine bond Distance, Angle and Dihedral angles:

When you make a selection from the Geometry menu, <u>the model automatically changes to the Wire model</u>
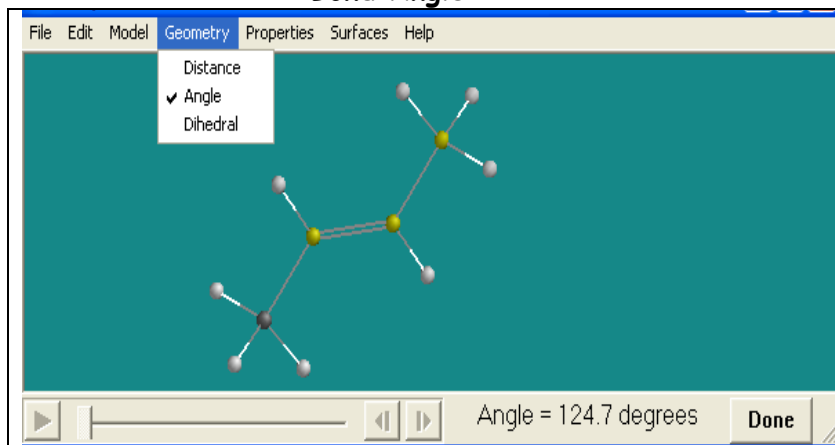
Bond Distance

Choose **Distance** from the menu then select a bond by clicking with the mouse; gold color indicates which bond is selected. The calculated result is shown at the bottom of the Spartan window. Click Done to proceed.

Bond distance shown is
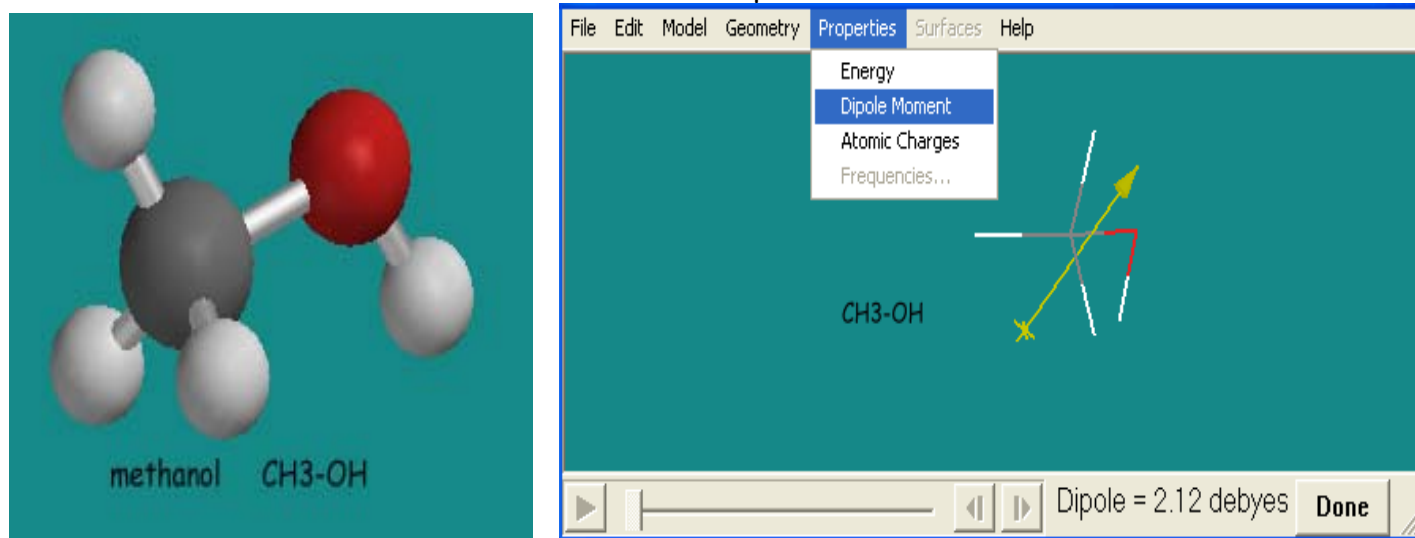**[Distance = 1.316 Angstroms]**

Bond Angle

Choose **Angle** from the menu then select a bond angle by clicking three atoms (gold colored atoms shown).

The calculated result is shown at the bottom of the Spartan window.
Click Done to proceed.

Use the Properties menu to examine Dipole Moment:

The wire model must be selected first, then choose Dipole Moment from the menu

methanol   CH3-OH

File Edit Model Geometry Properties Surfaces Help

Energy
Dipole Moment
Atomic Charges
Frequencies...

CH3-OH

Dipole = 2.12 debyes   Done

Use the Surfaces menu to examine electron surfaces and electrostatic potential maps:

File Edit Model Geometry Properties Surfaces Help

Potential Map ▶   Solid
Density   ▶   Transparent
                  ✔ Mesh

                    None

transparent surface for NH3

solid surface for BH3

mesh surface for H2O