**Literature Discussion: In-Class Questions**

**Article**: Danis, J. A.; Lin, M. R.; Scott, B. L.; Eichhorn, B. W.; and Runde, W. G. *Inorg. Chem.* **2001**, 40, 3389-3394.

**Title**: Coordination Trends in Alkali Metal Crown Ether Uranyl Halide Complexes: The Series [A(Crown)]2[UO2X4] Where A = Li, Na, K, and X = Cl, Br

1. What was the purpose of the crown ethers in the crystallization experiments carried out in this article, and why were different crown ethers used for the different Group I metals?
2. Explain whether 15-crown-5 would be similarly effective to stabilize a cation like cesium. Draw another molecule that might work towards that purpose.
3. Look at the bond distances in Table 1. Why is the U-OUr bond length in **6** significantly longer than the one in **5**?
4. Look at the structures you drew for compounds **1**-**6**. Using the concepts discussed in class on Wednesday, explain the trend in binding selectivity of the Group I metals to the uranyl compounds.
5. Let’s say you managed to synthesize an analogous uranyl halide compound with the formula $\left[Na\left(15-crown-5\right)\right]\_{2}[UO\_{2}I\_{4}]$. Draw what you would predict its structure to be.