

## Silver Tree

### Purpose

To demonstrate the basic properties of an electrochemical cell.

### Materials

250 to 600 mL beaker

0.1 *M* AgNO<sub>3</sub>

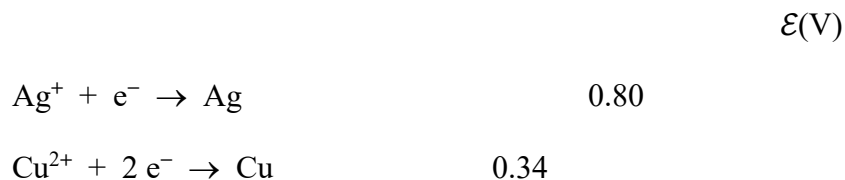
copper wire

### Procedure

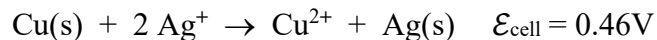
1. Bend the copper wire into desired shape (tree, conical helix, etc.).
2. Place in beaker of appropriate size or hang from a stir rod placed across the top.
3. Pour the  $\text{AgNO}_3$  solution into the beaker until the tree is covered.
4. Silver crystals will form on the wire after several minutes, and the solution will start to turn blue. More crystals will form and give a “fuzzy” appearance over the course of the lecture.

### Additional Information

1. The half-reactions are:



The overall reaction is:



2. More concentrated solutions of  $\text{AgNO}_3$  can be used for a more dramatic effect, however  $\text{AgNO}_3$  is expensive and hard to dispose of.

### Reference

University of Illinois, Urbana-Champaign.