

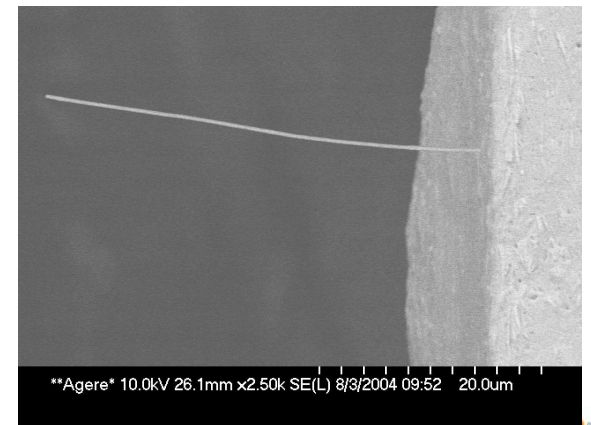
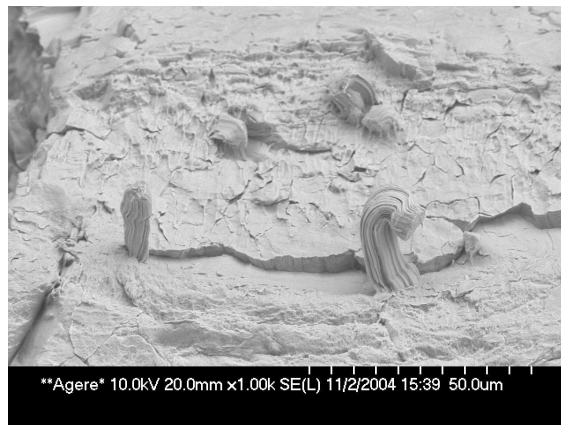
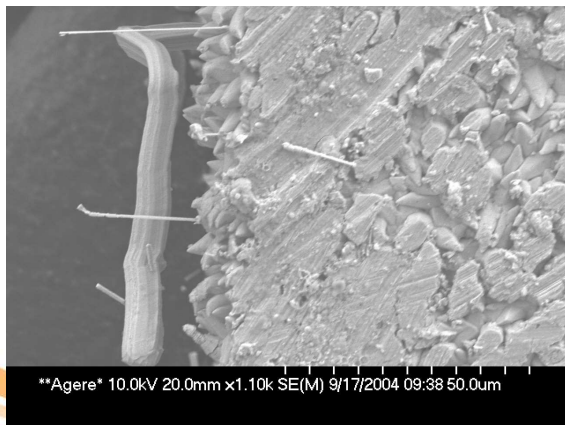
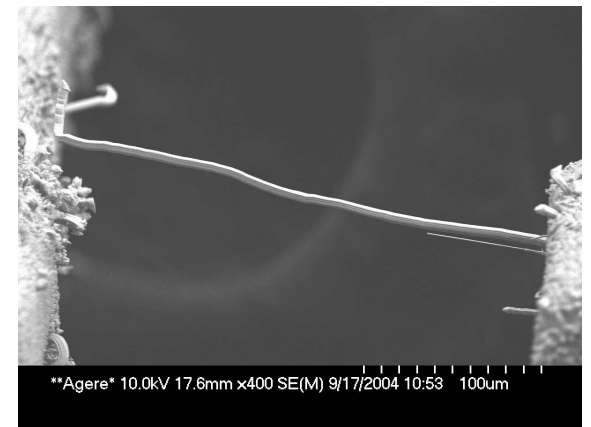
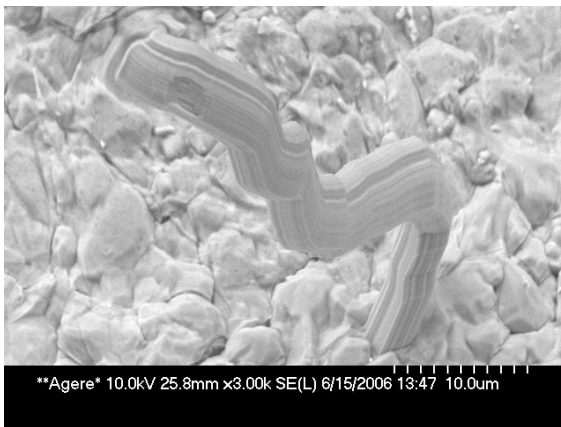
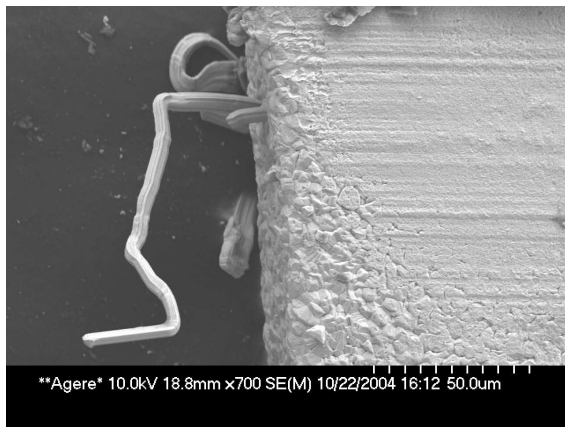
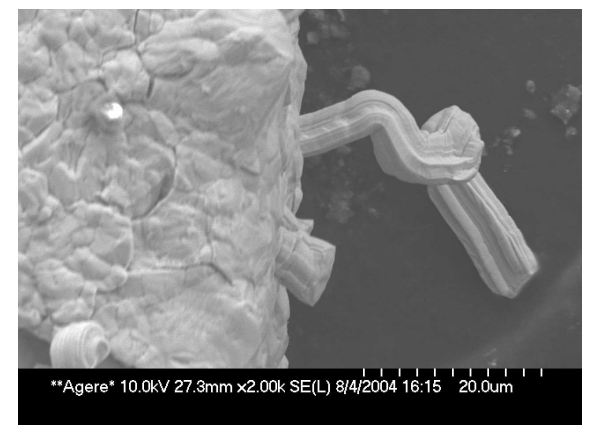
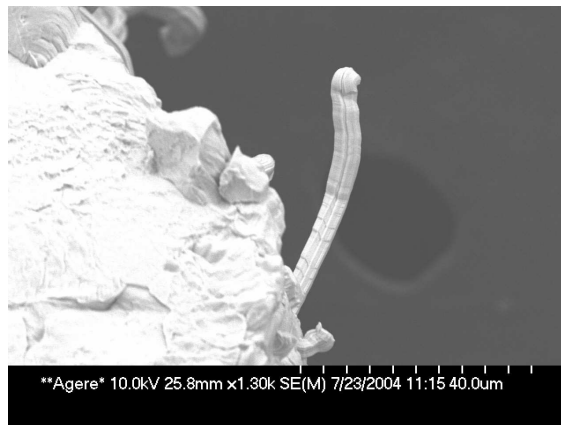
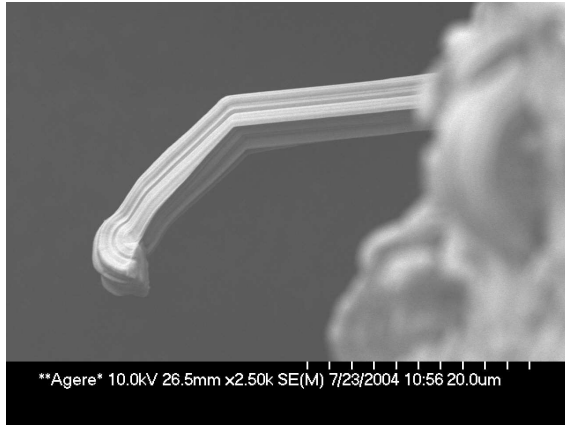


# **Sn Whiskers for Wednesday Whiskers Call**

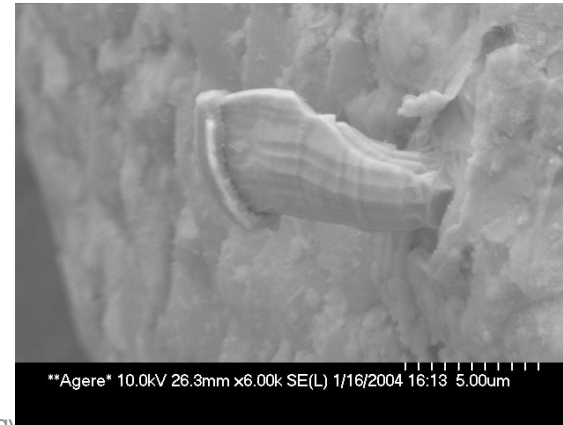
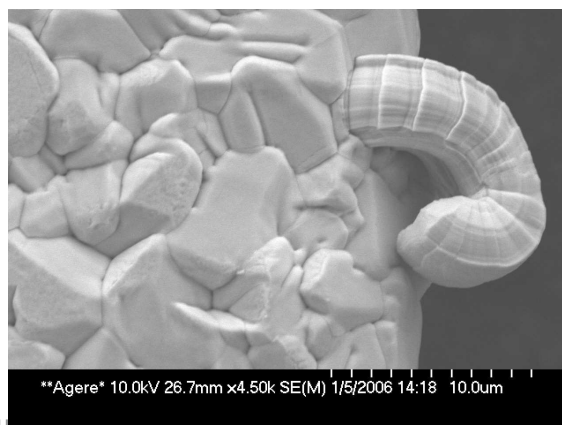
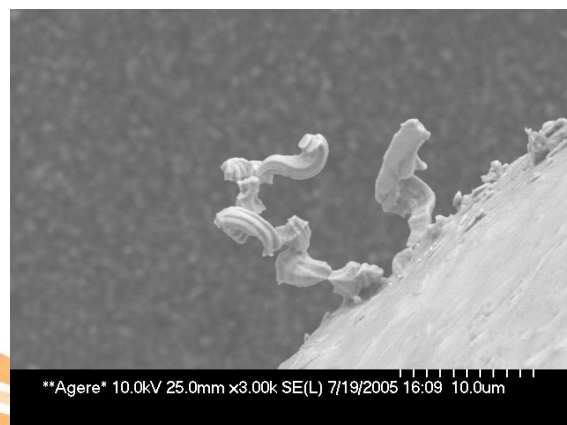
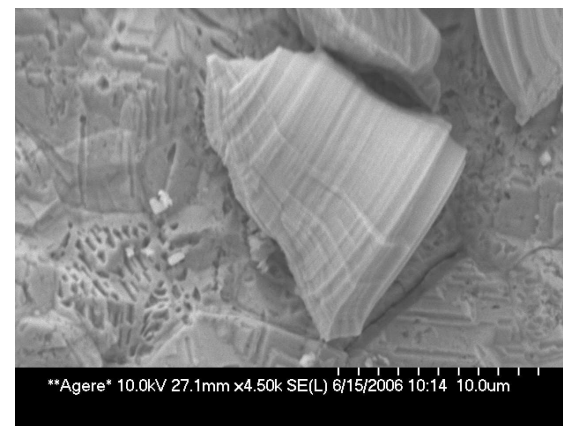
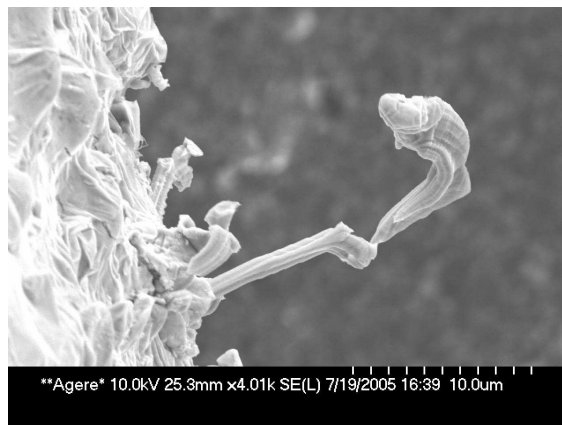
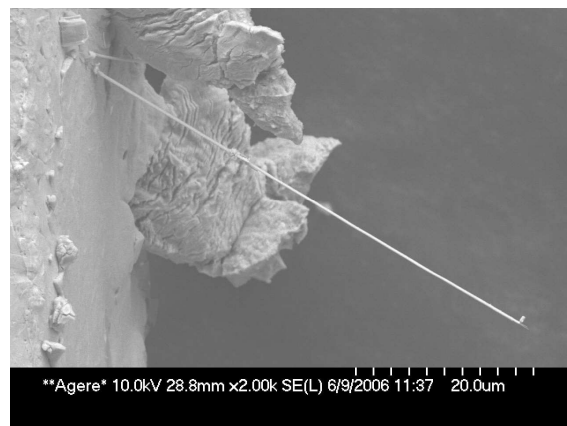
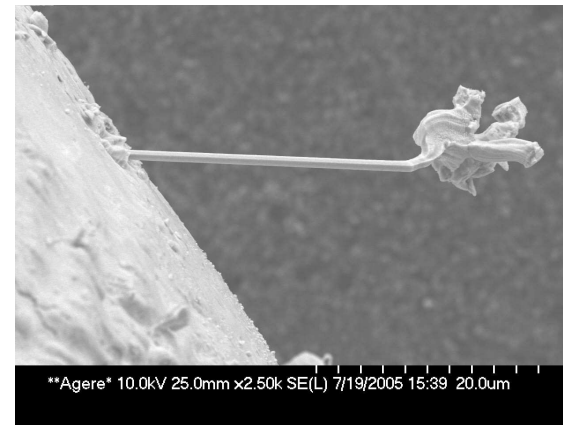
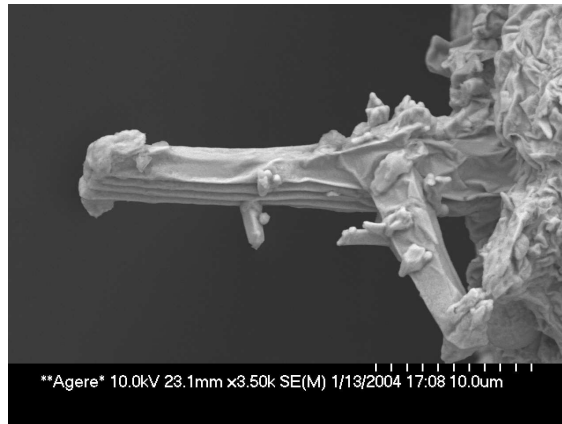
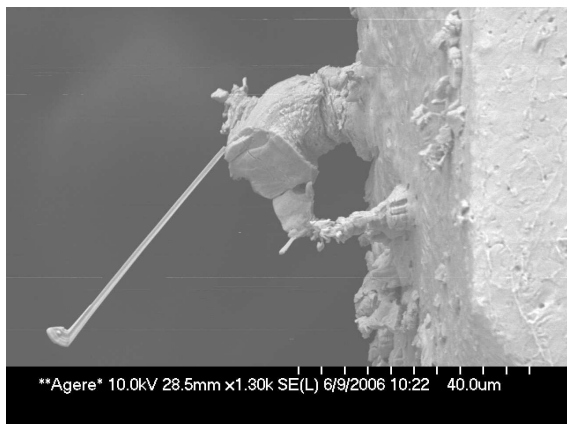
**1.27.10**

**John Osenbach**

# Examples of Different types of Sn whiskers



# Examples of Different types of Sn whiskers



# Conclusions

- Whiskers take on a variety of shapes including whiskers growing from whiskers
  - difficult to reconcile whisker Sn growth as extrusion processes
- The many whiskers have both radial marks and kinks
  - Indicate a step wise process
    - excess Sn-local stress → local breaks in pinning surface oxide provide vacancies that allow excess Sn to move → excess Sn diffuses to nucleation site where whisker begins to grow → surface is re-oxidized → process continues

