Finding a Lost Beam on a Transmission Electron Microscope
Electron Microscopy Core, University of Utah

If you can't find the beam, do the following in order. Stop when you find the beam:

1. Check "obvious" reasons beam may be unseen
   - Can you see the fluorescent screen? In other words, is the cover over the viewing window?
   - Is high voltage (high tension) on?
   - Is filament turned on?
   - If filament is on, is the current reading reasonable? (For example, if current is less than 1 µA on T12, the filament probably is burned out.)
   - Are column valves open (FEI Tecnai)?
   - Is beam blank on?
   - If you are using a cryoholder, is the sleeve covering the specimen?
2. Move the specimen stage (a grid bar may be blocking the beam)
3. Remove objective aperture
4. Decrease magnification (use lowest SA setting on FEI TEMs)
5. Adjust intensity knob (keep lights off so you can see better), beam may be spread out
6. On FEI Tecnai microscopes, click "Reset Beam" ("Tune" tab, "Beam Settings" panel)
7. Decrease spot size to 1 or 2
8. Remove specimen from beam. If beam appears, then your specimen is too thick or something on specimen rod is blocking beam.
   - On Tecnai instruments, close column valves, then retract specimen rod slightly and hold in place with pen. After vacuum recovers, open column valves and look for beam. (Always close column valves when inserting or retracting specimen rod.)
   - Remove specimen from holder, reinsert empty specimen holder, check for beam.
9. Try applying a saved alignment
10. Get help

Advanced Options (please only attempt if you are trained or directed)
11. Remove condenser aperture. Aperture should be re-inserted and realigned after beam is found and beam is re-aligned.
13. Increase bias or step setting.

by David Belnap, July 3, 2014