Bottom-up gold electrodeposition for high aspect ratio features in imaging applications Patent 10,889,908

Description

Problem:

Gold filling by conventional electrodeposition processes will deposit substantially on the field around the features of interest. This results in extended post-deposition processing to remove the extra material, waste of deposited gold and more rapid depletion of electrolyte.

Invention:

A process for filling trenches with gold from the bottom permitting seam-free and void-free filling. Leaves minimal undesired deposits, little waste, and reduction in post-deposition processing time.

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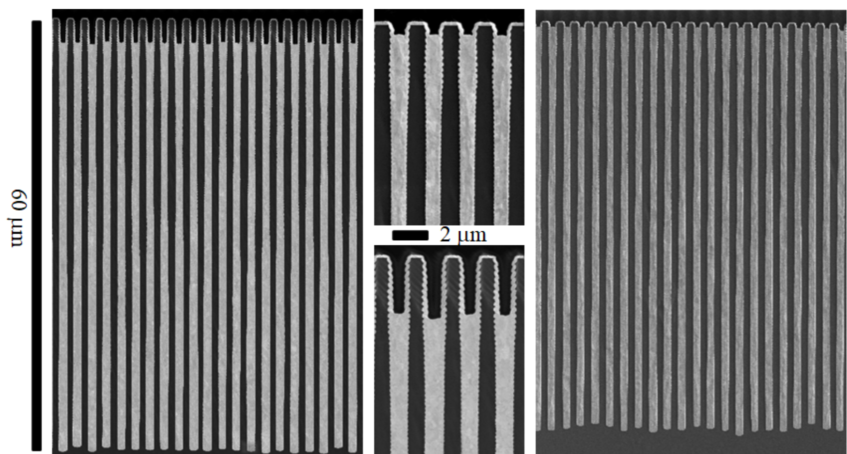
Benefits

Commercial Applications:

- X-ray interferometry
- X-ray phase contrast imaging
- X-ray wave-front-sensing
- Optics characterization
- Optics alignment
- Focus characterization at X-ray free-electron lasers (XFELs)
- Biomedicine
- Materials Science
- Security

Competitive Advantages:

- Minimal deposits on the field
- Little waste of gold
- Reduction in post-deposition processing time.
- Void-free filled recessed feature with
- highly uniform filling profiles.



Also see patent 11,579,344 and patent application 17/972,816