

FIG. 1

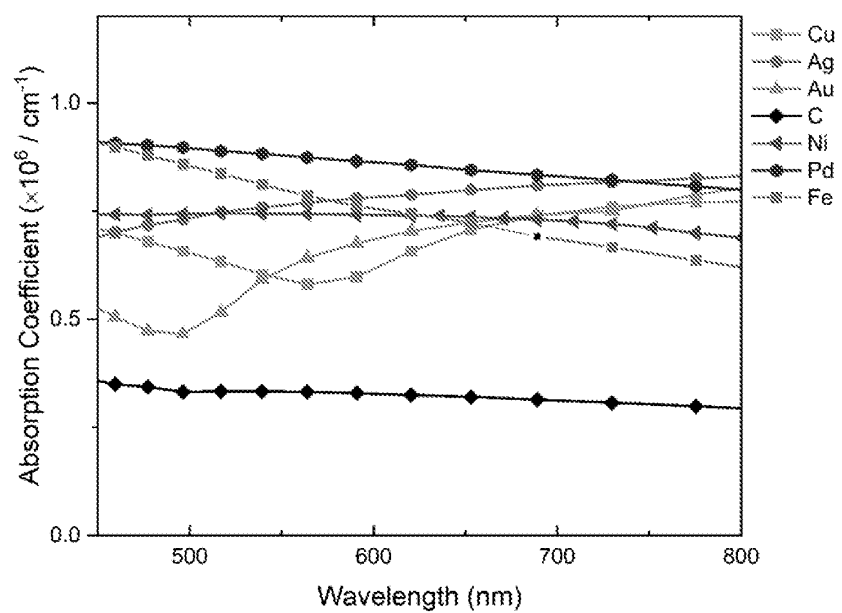


FIG. 2

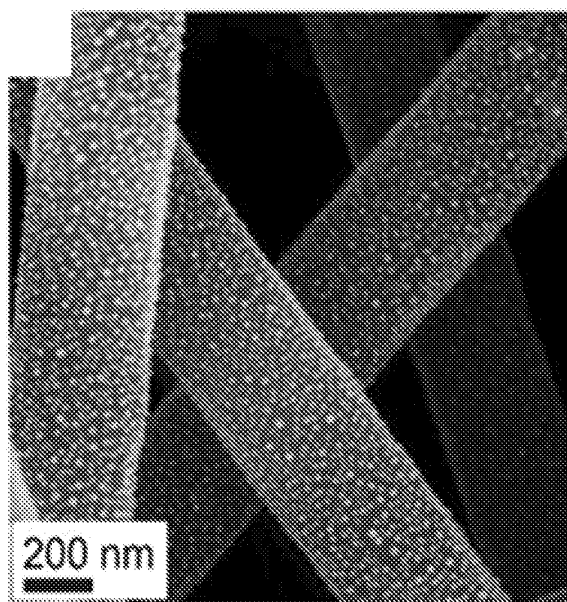


FIG. 3

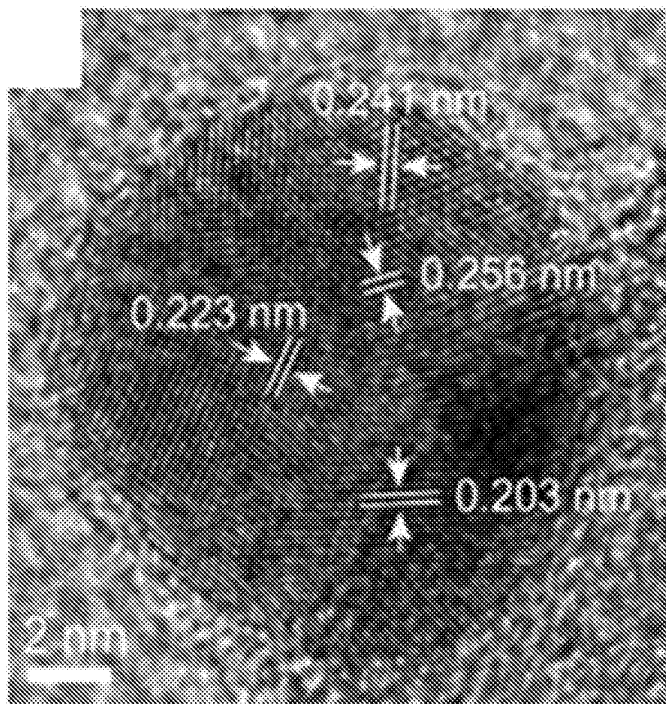


FIG. 4.

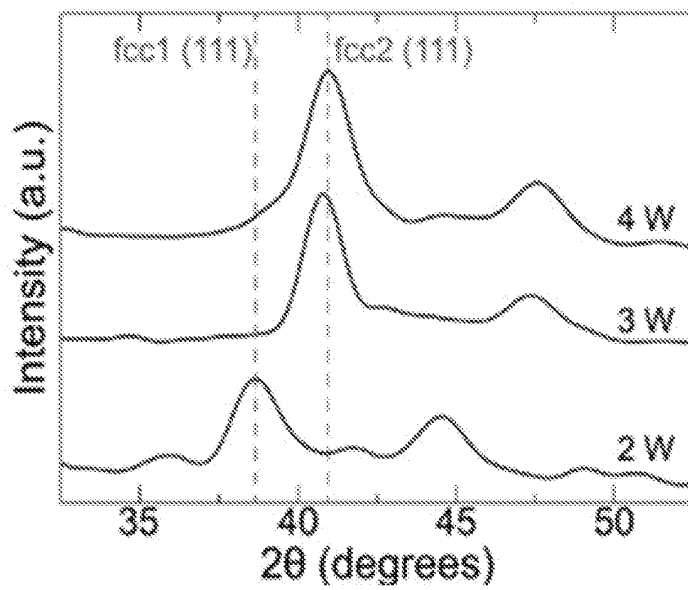


FIG. 5A

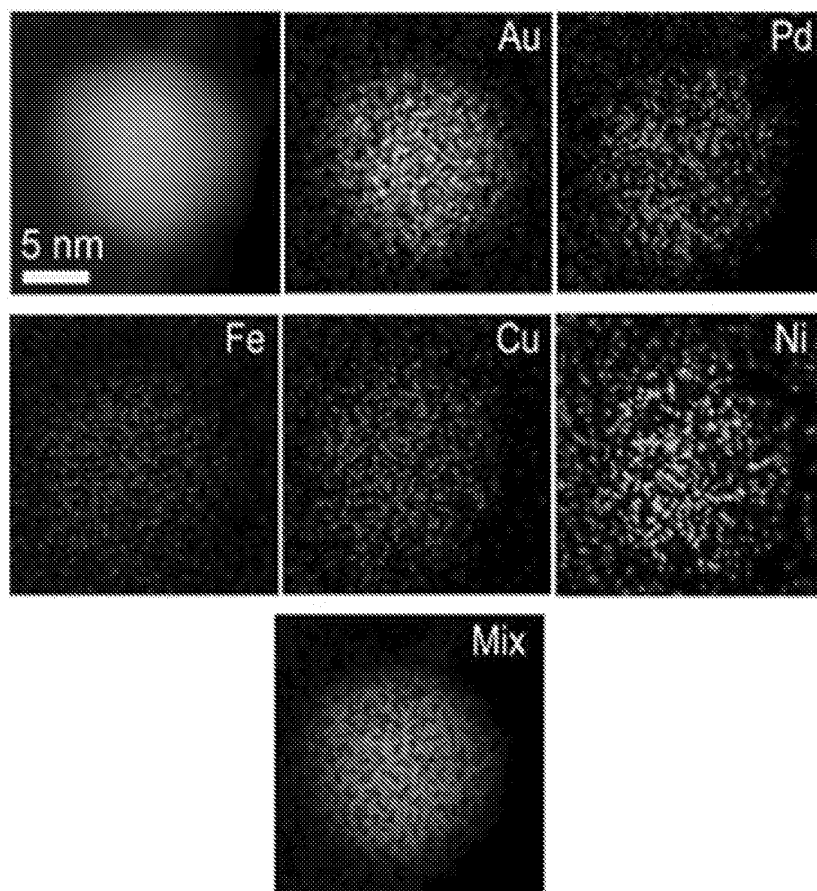


FIG. 5B

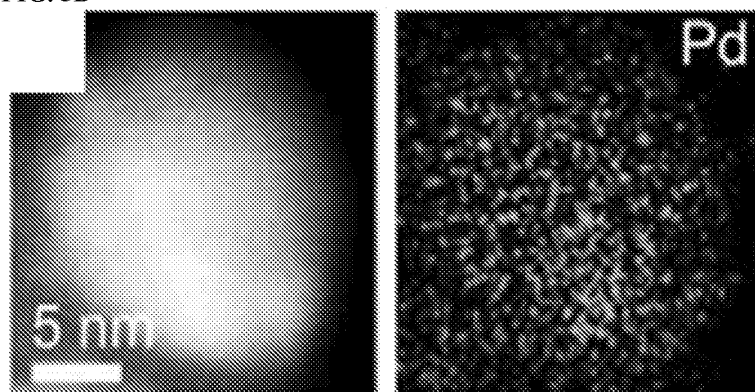


FIG. 5C

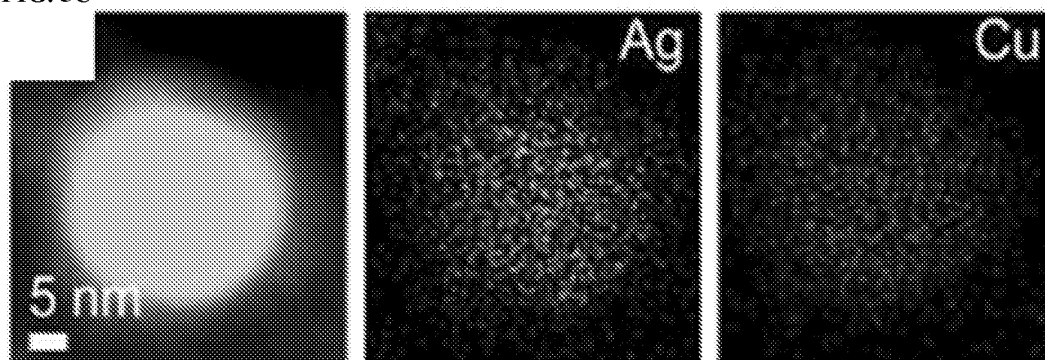


FIG. 5D

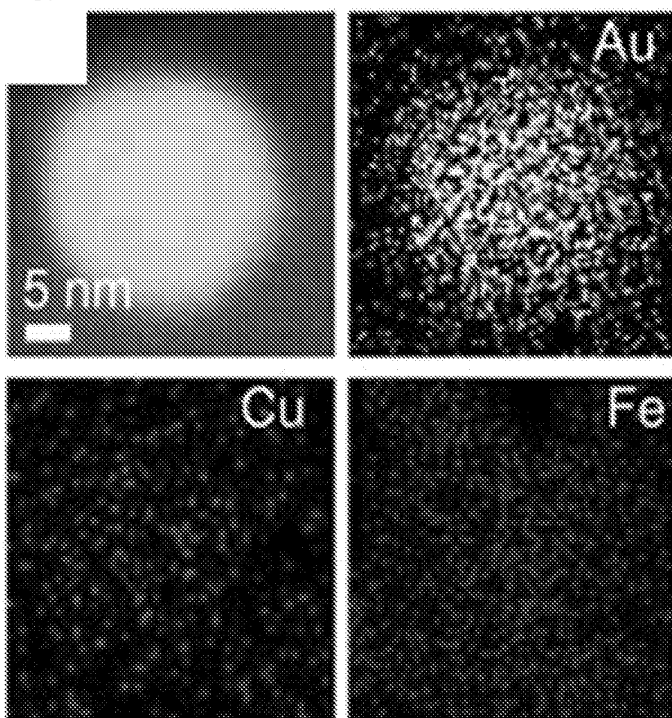


FIG. 5E

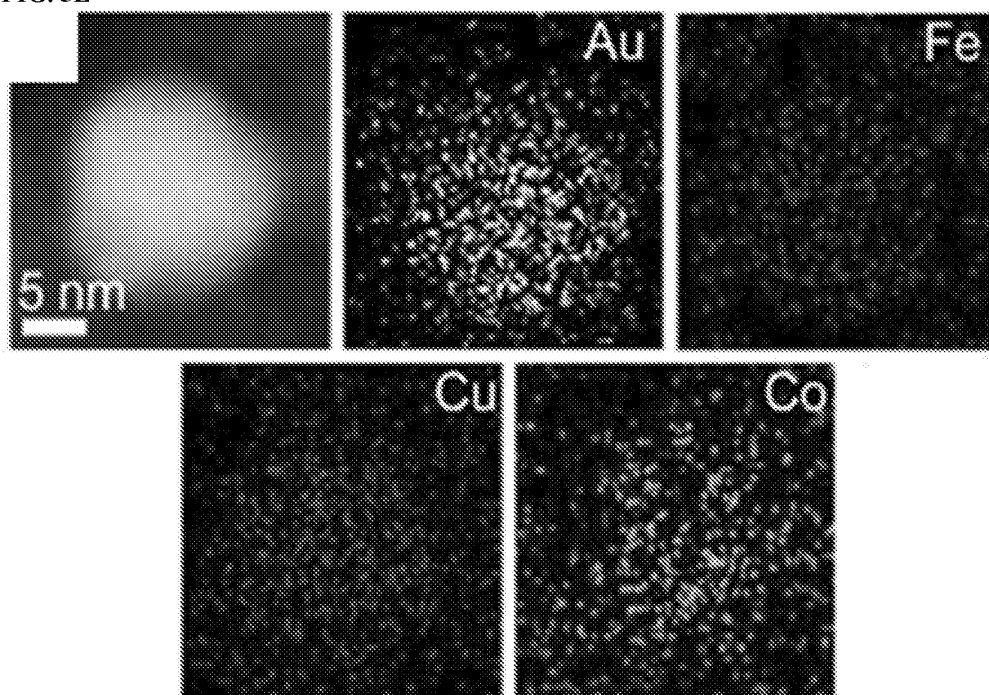


FIG. 6A.

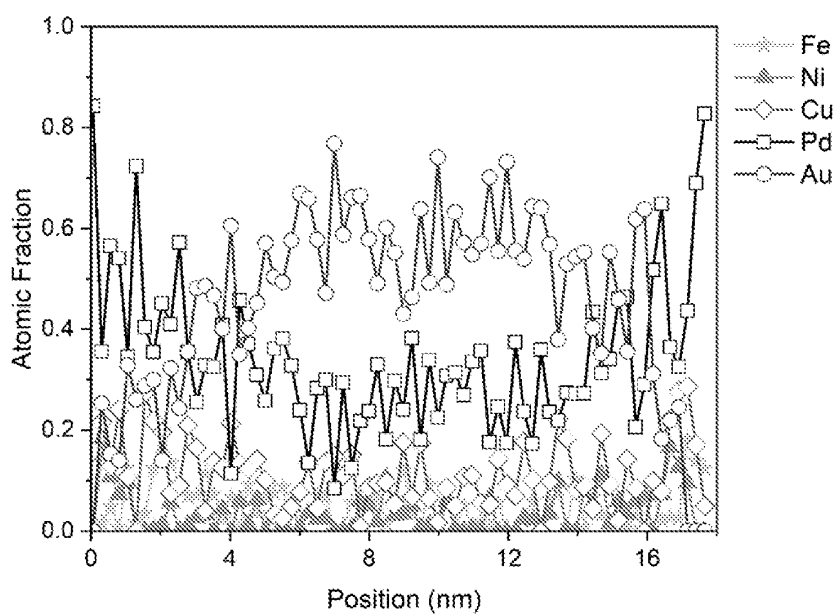


FIG. 6B

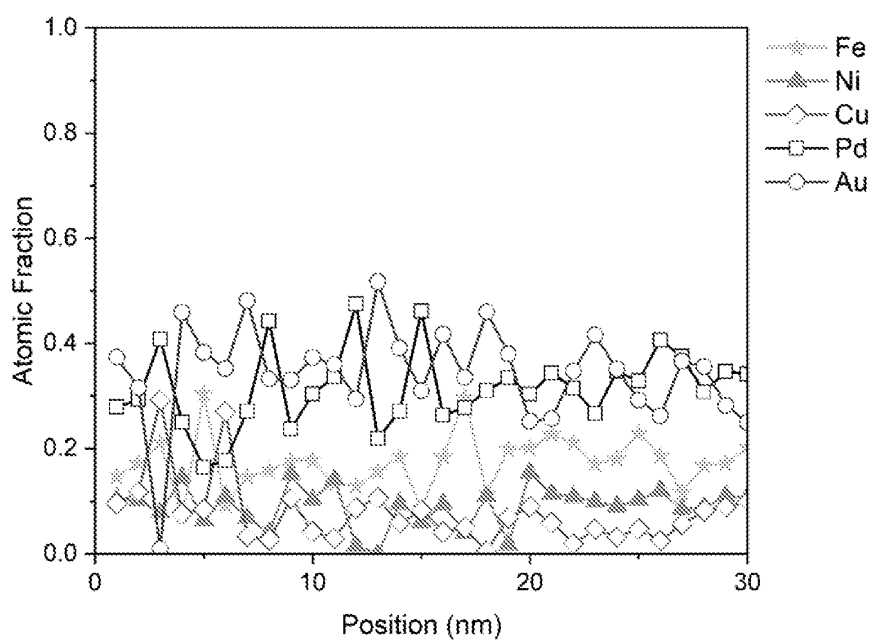


FIG. 6C

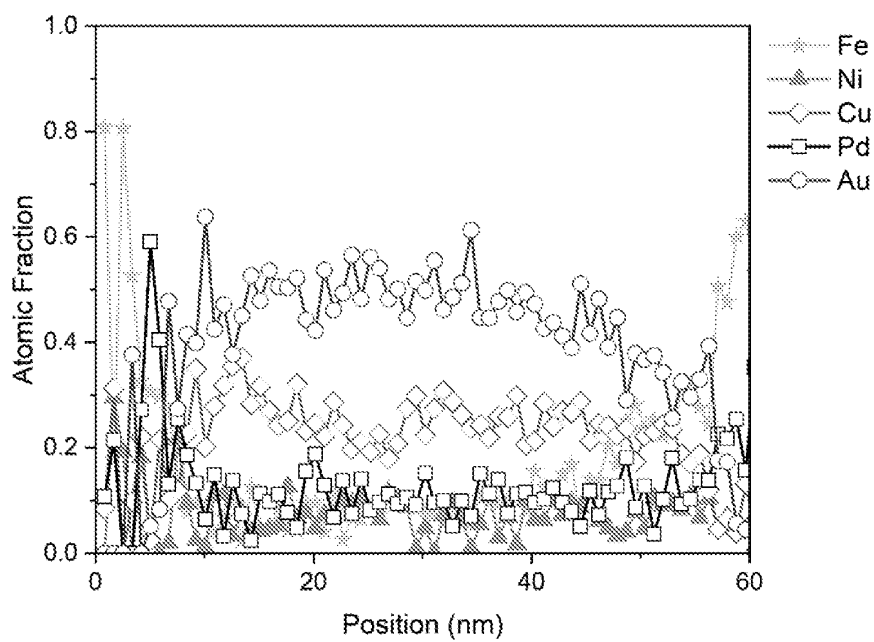


FIG. 6D

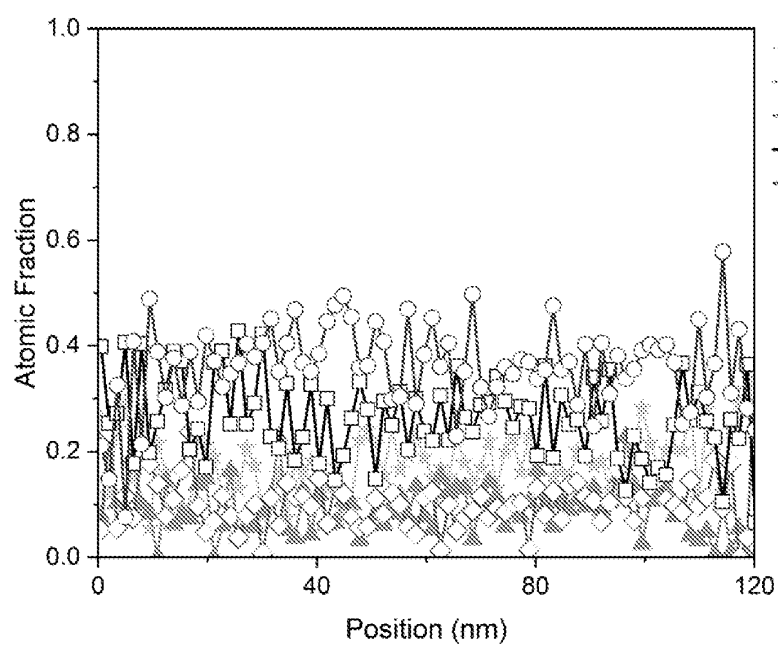


FIG. 7A

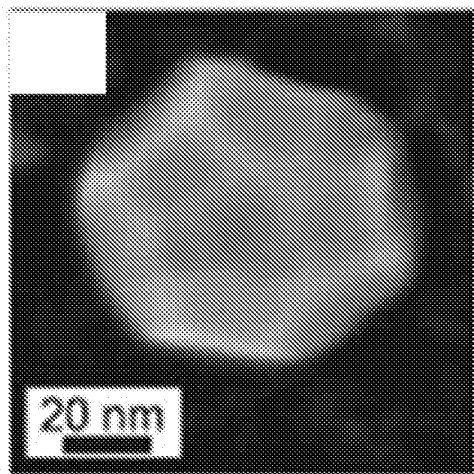


FIG. 7B

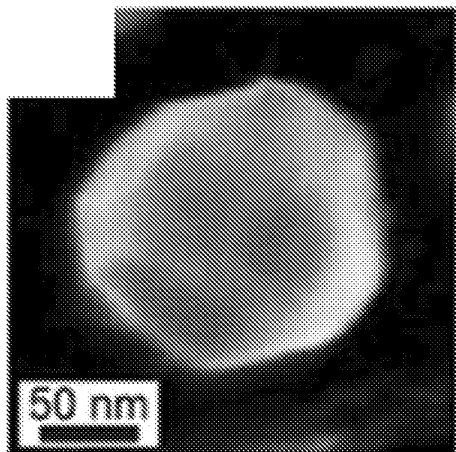


FIG. 7C

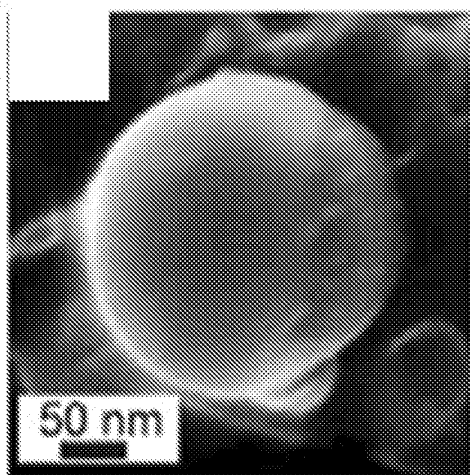


FIG. 8A

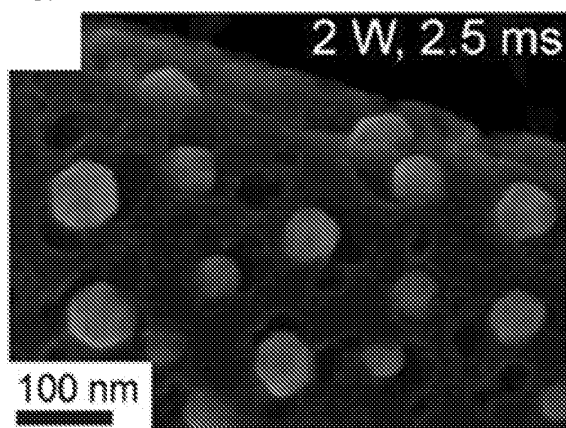


FIG. 8B

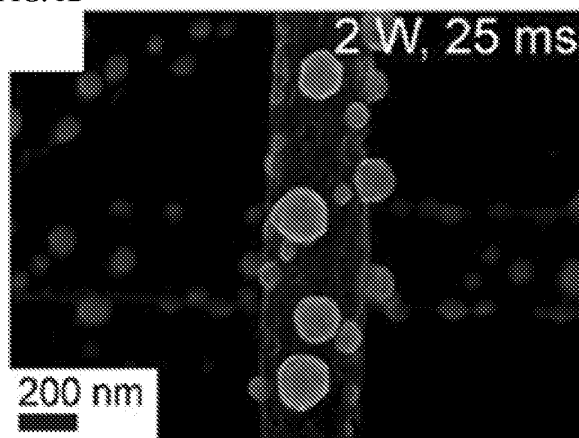


FIG. 8C

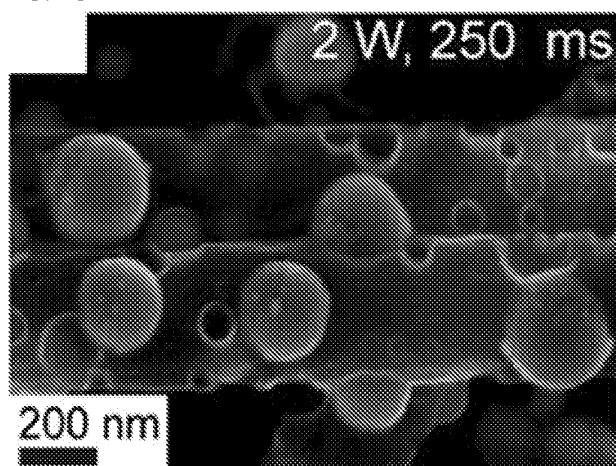


FIG. 9A

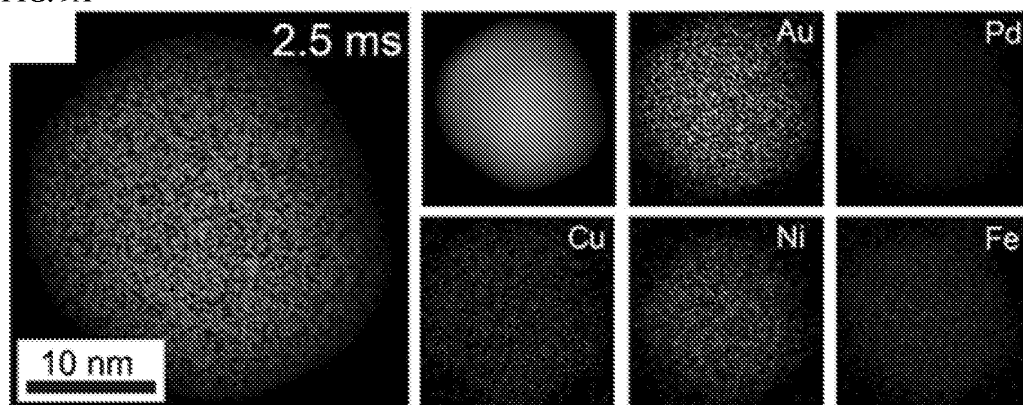


FIG. 9B

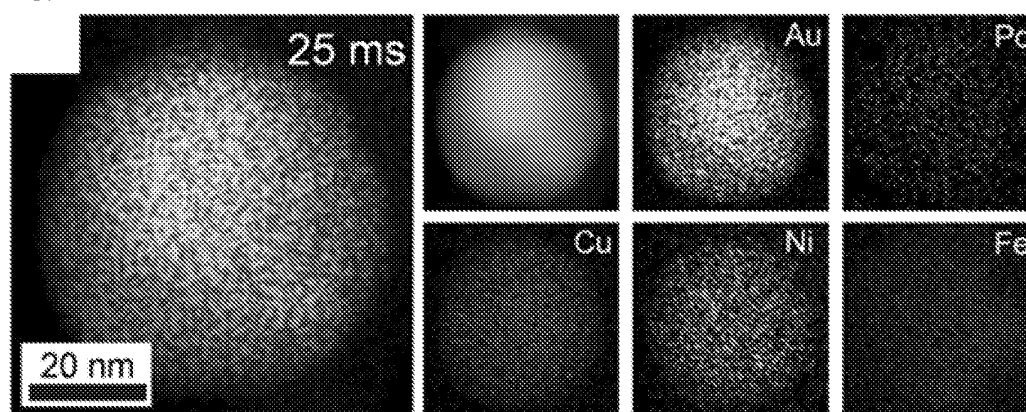


FIG. 9C

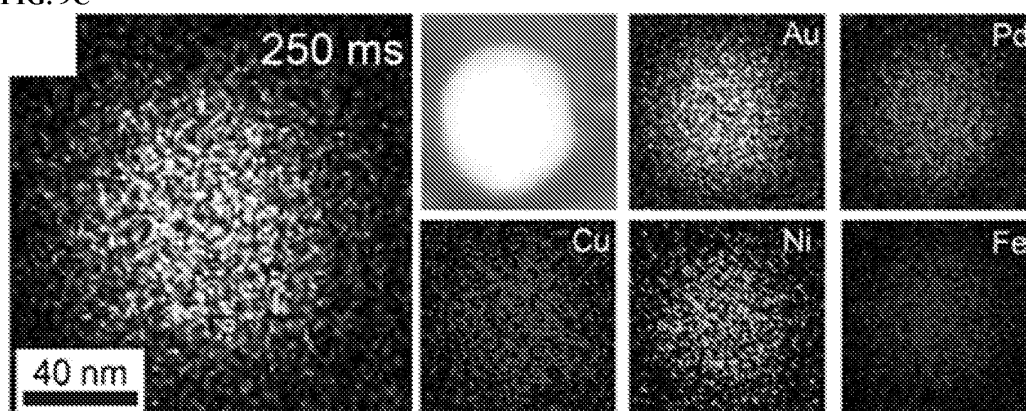


FIG. 10

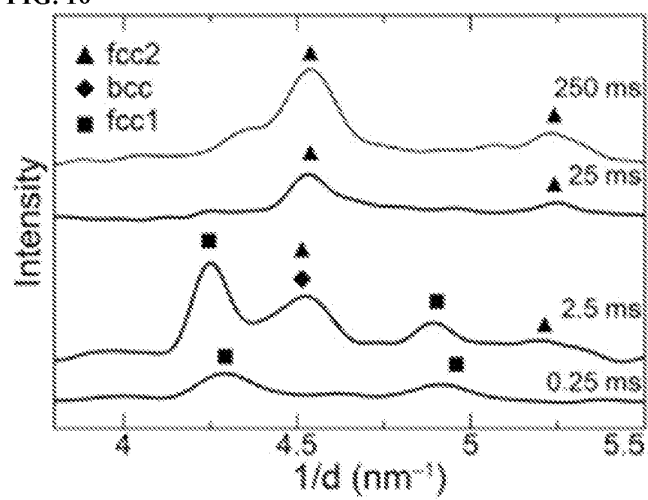


FIG. 11

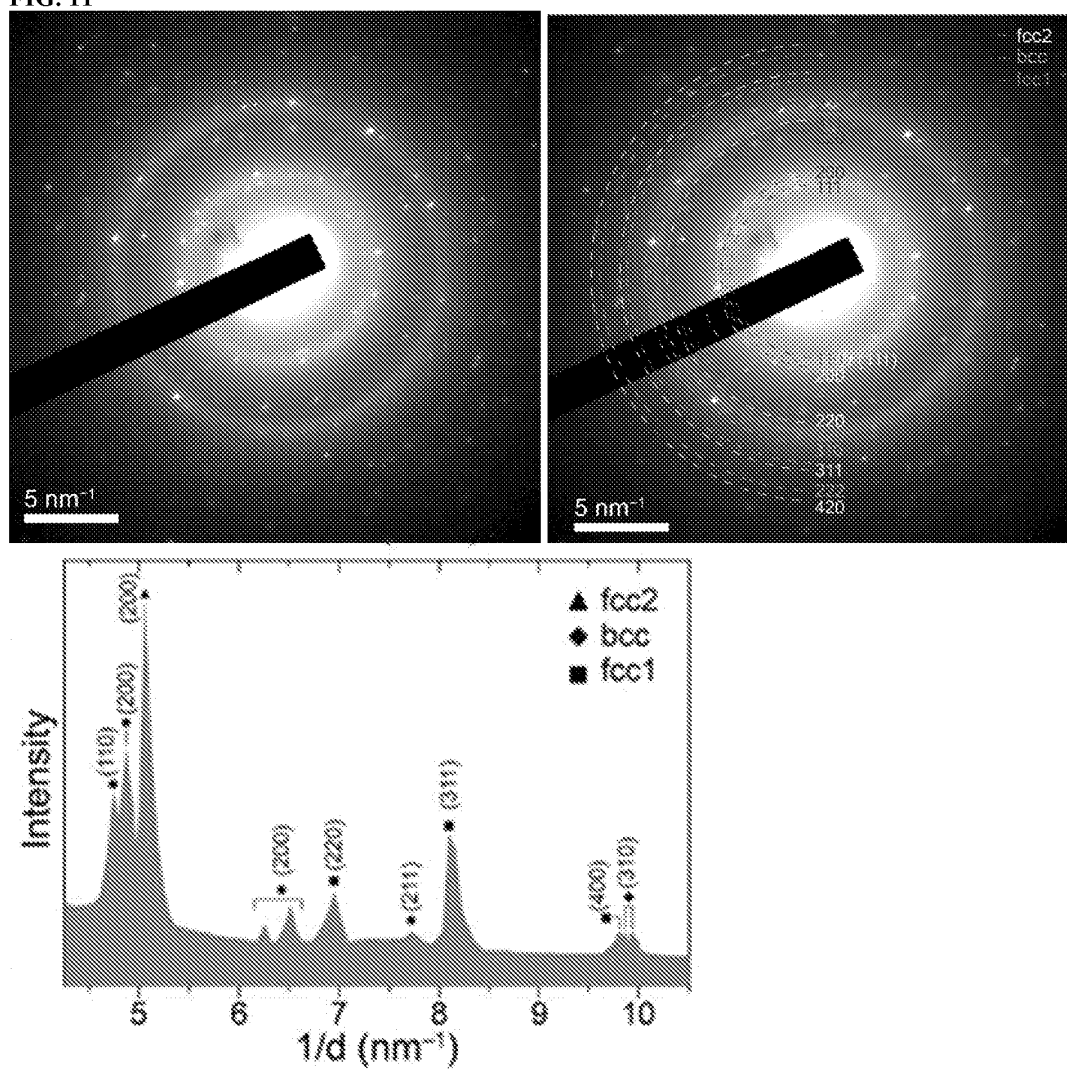


FIG. 12

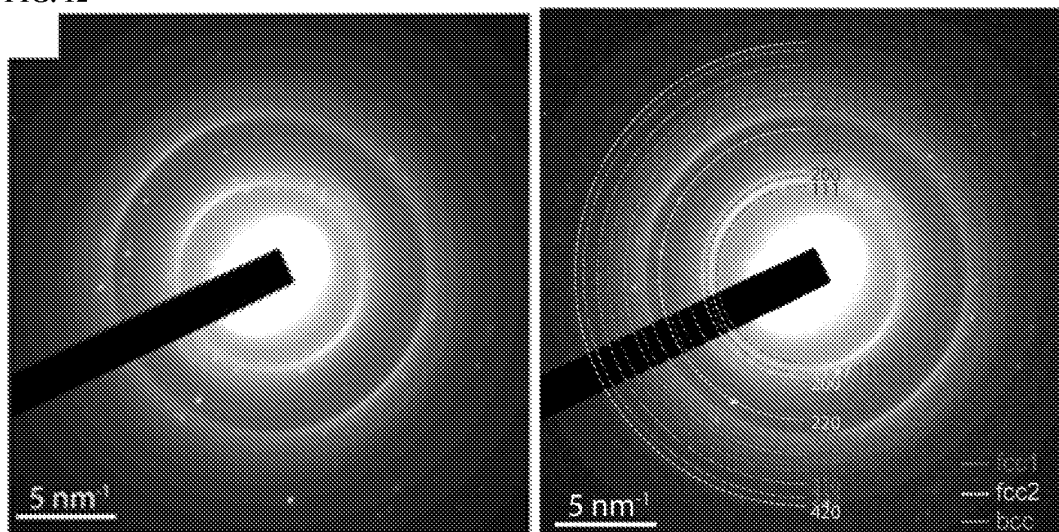


FIG. 13

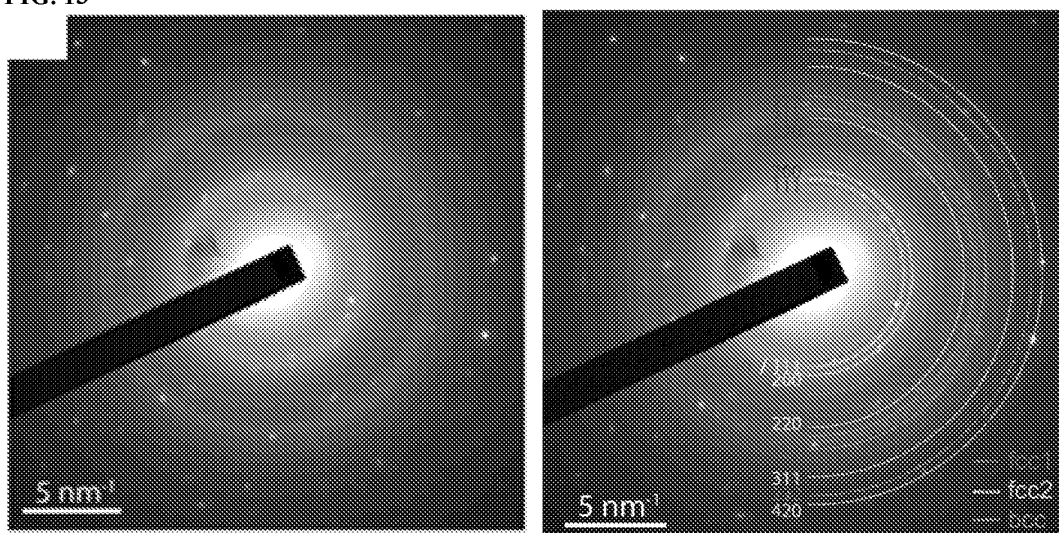


FIG. 14A

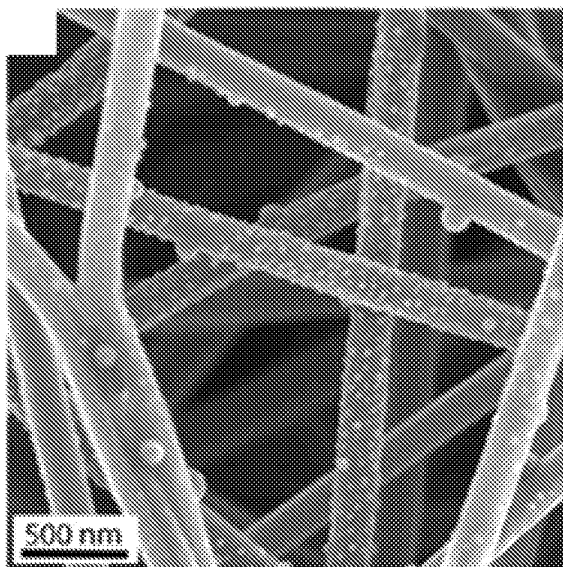


FIG. 14B

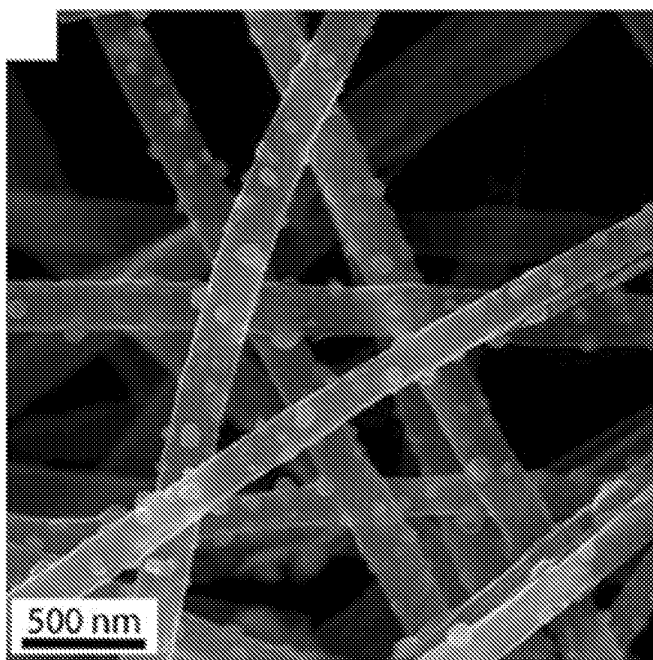


FIG. 14C

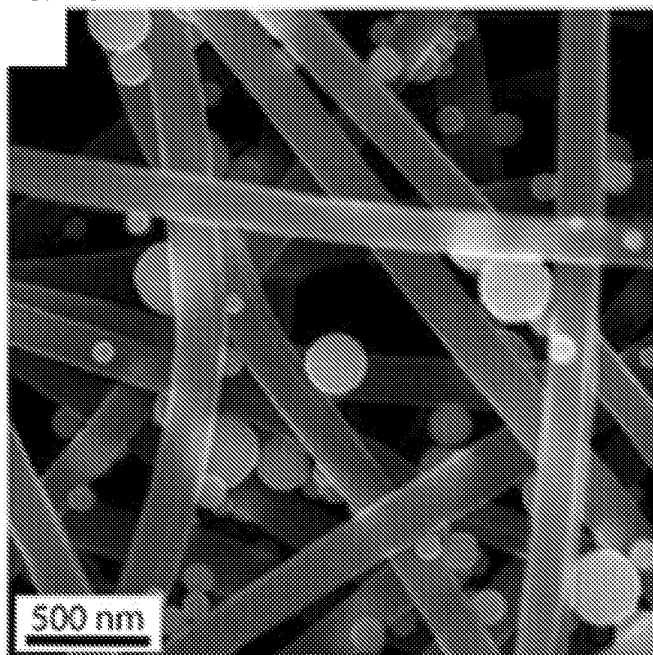


FIG. 15

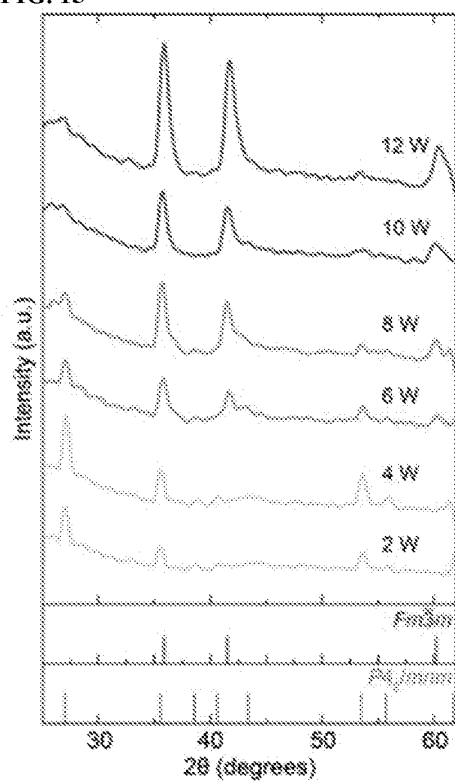


FIG. 16

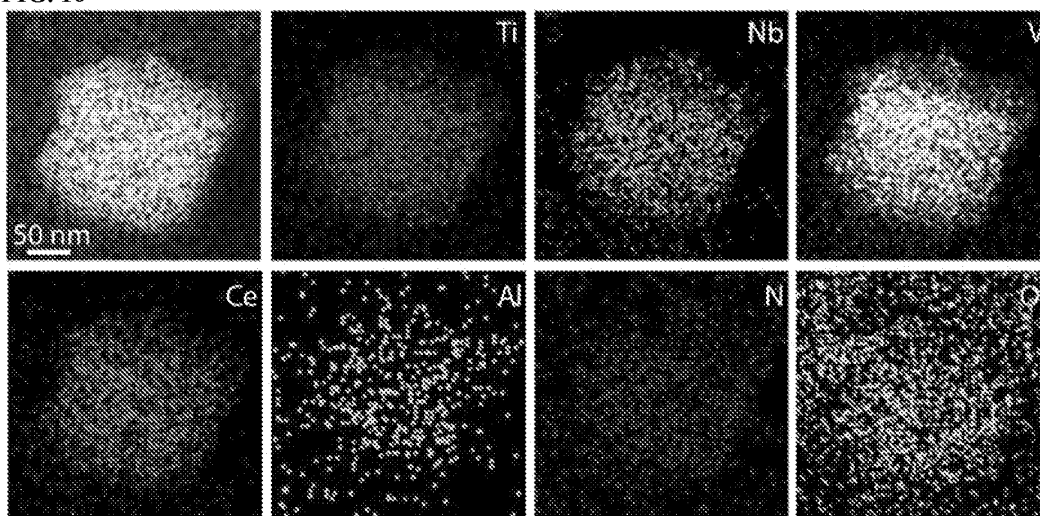
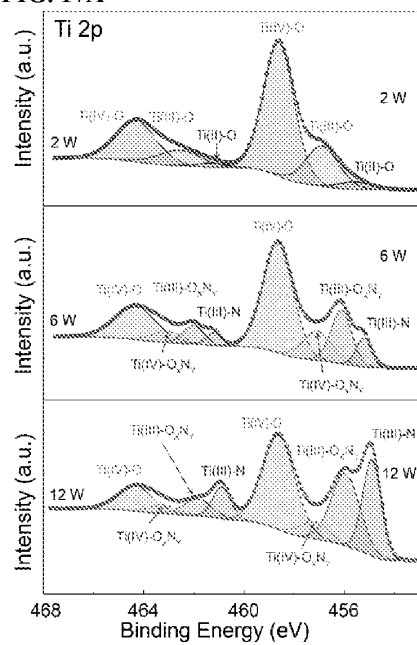


FIG. 17A



The figure consists of three vertically stacked plots showing the intensity (in arbitrary units, a.u.) of the V 2p core level as a function of binding energy (in eV) for vanadium phosphate oxide (VPO). The x-axis ranges from 528 to 510 eV, with major ticks at 528, 524, 520, 516, and 512. The y-axis represents Intensity (a.u.).

- Top Plot (2 W):** Shows the spectrum at 2 W laser power. It features several peaks labeled with their corresponding chemical states: $V(V)-O$, $V(III)-O$, $V(III)-OH$, $V(IV)-O$, $V(III)-N$, and $V(III)-OH$. A small peak for $V(IV)-O-N_x$ is also visible.
- Middle Plot (6 W):** Shows the spectrum at 6 W laser power. The peaks are more pronounced, particularly the $V(III)-O$ and $V(III)-N$ peaks. Labels include $V(V)-O$, $V(IV)-O$, $V(III)-O$, $V(III)-N$, $V(IV)-O-N_x$, and $V(III)-O-N_x$.
- Bottom Plot (12 W):** Shows the spectrum at 12 W laser power. The $V(III)-O$ and $V(III)-N$ peaks are significantly enhanced compared to lower powers. Labels include $V(V)-O$, $V(IV)-O$, $V(III)-O$, $V(III)-N$, $V(IV)-O-N_x$, and $V(III)-O-N_x$.

In all plots, the peaks are deconvoluted into individual components represented by shaded areas under the main envelope curve.

FIG. 18A

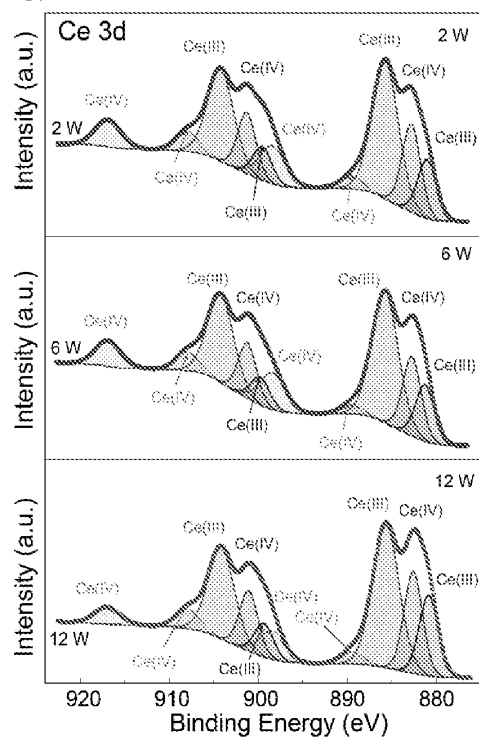


FIG. 18B

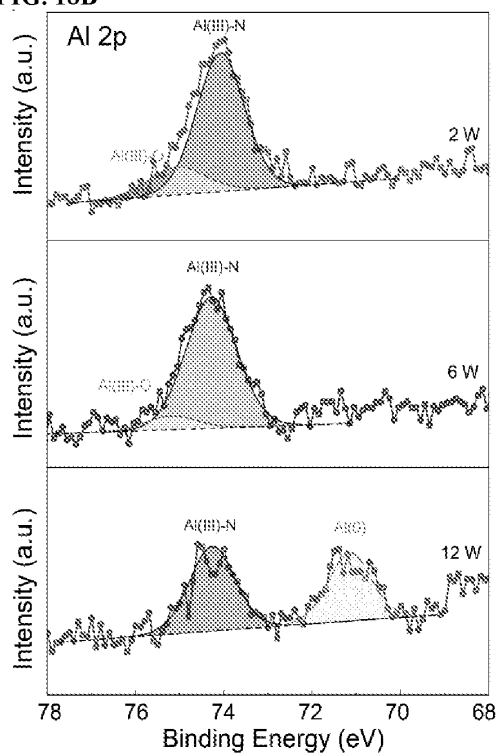


FIG. 19A

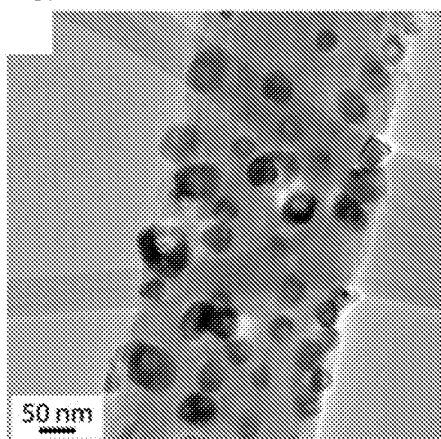


FIG. 19B

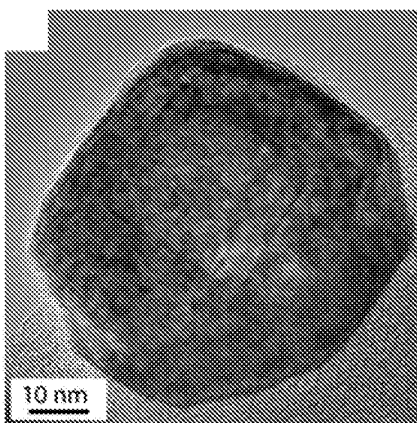


FIG. 19C

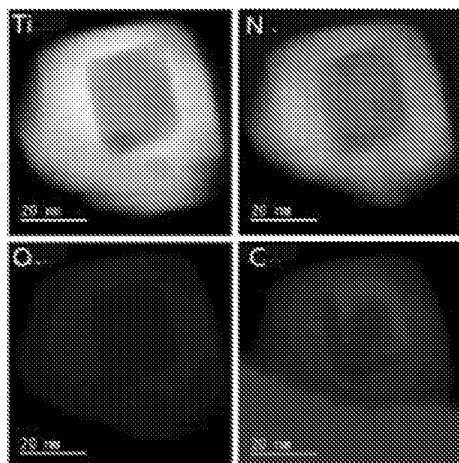


FIG. 20A

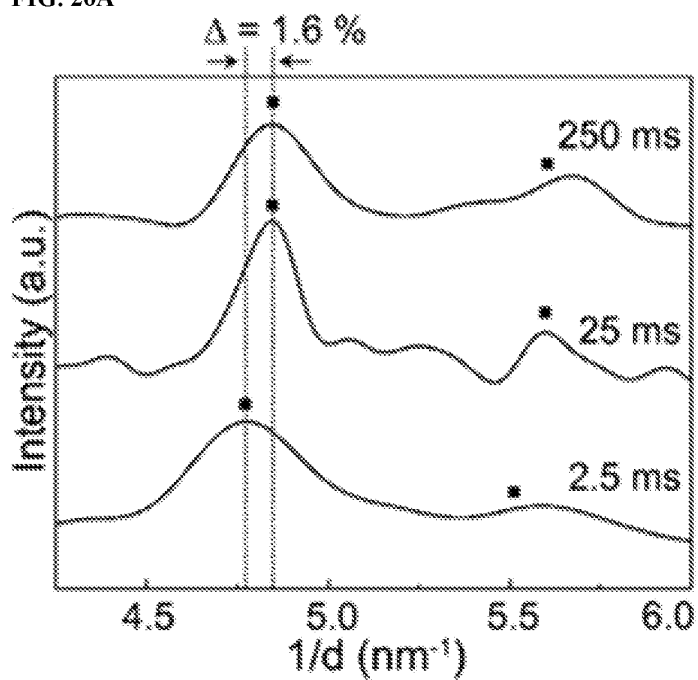


FIG. 20B

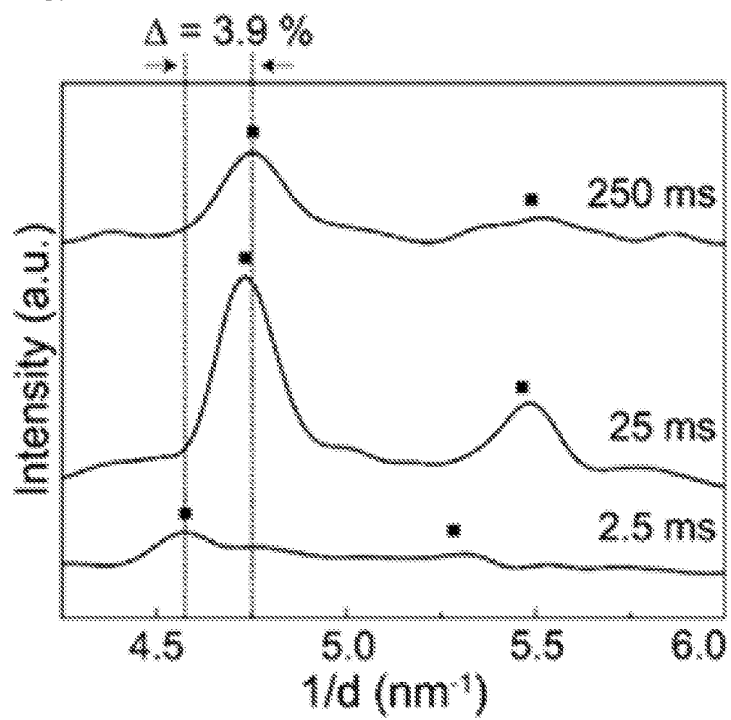


FIG. 21A

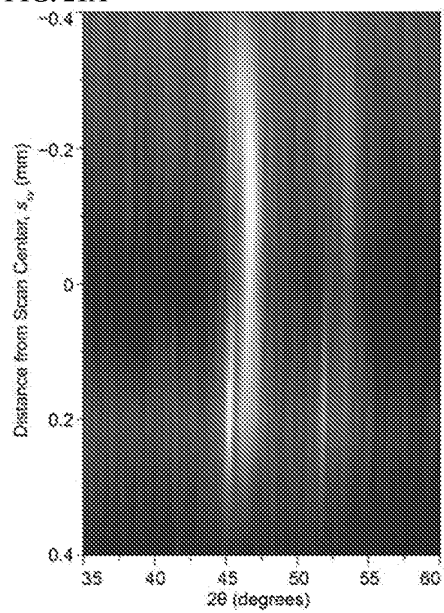


FIG. 21B

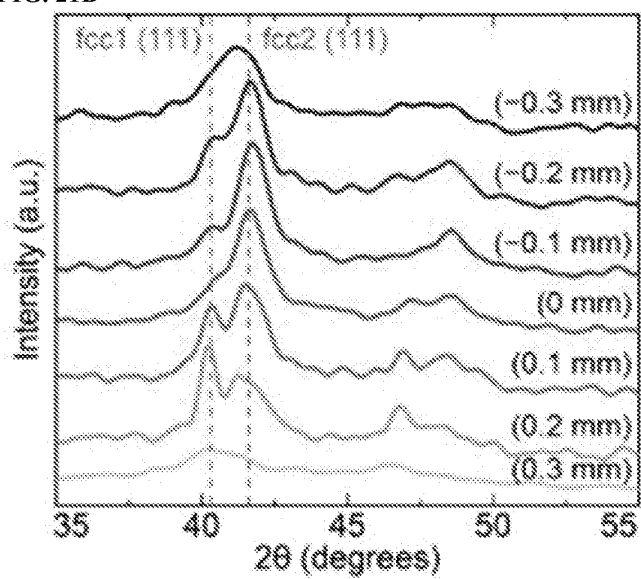


FIG. 22A

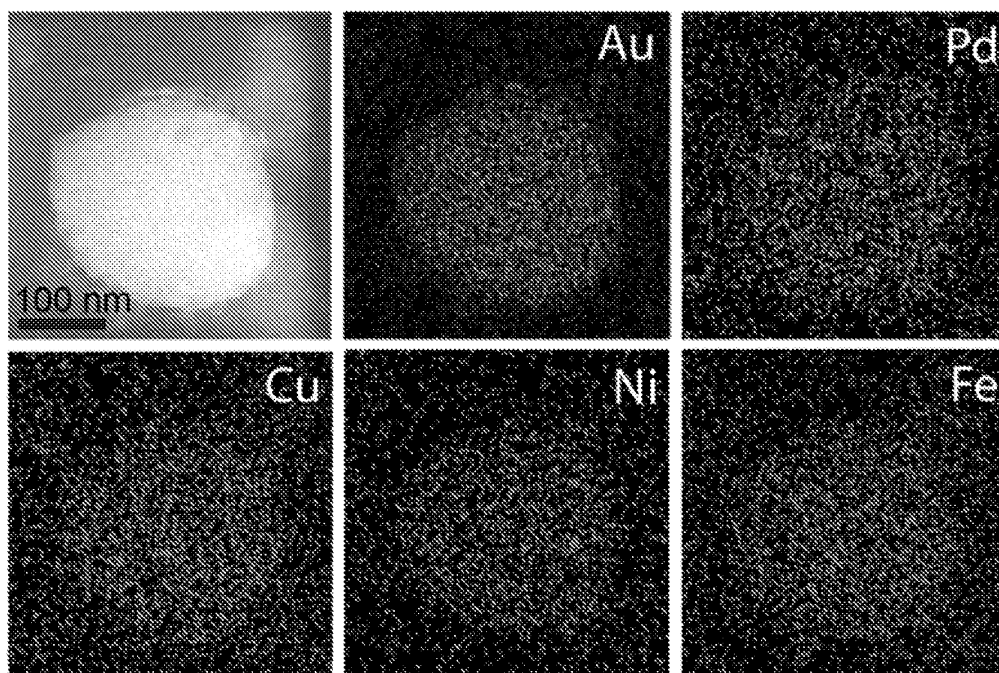


FIG. 22B

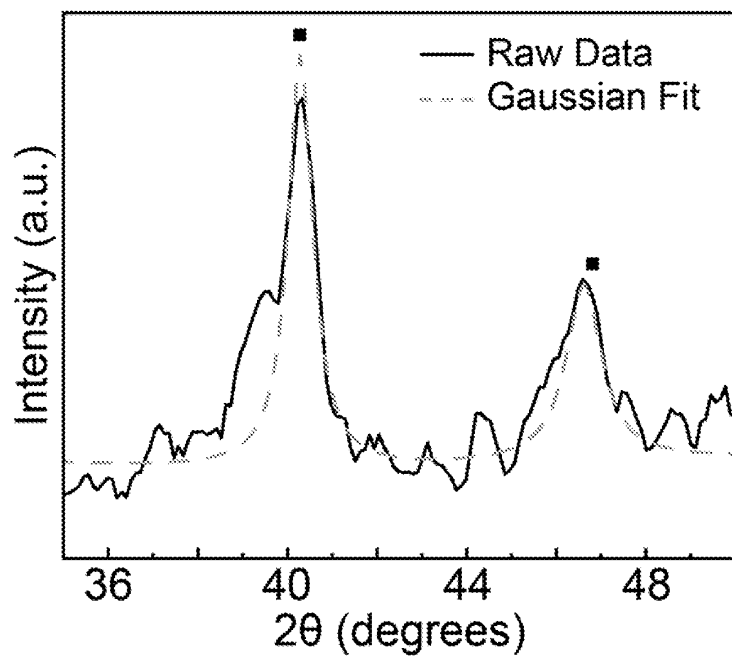


FIG. 23A

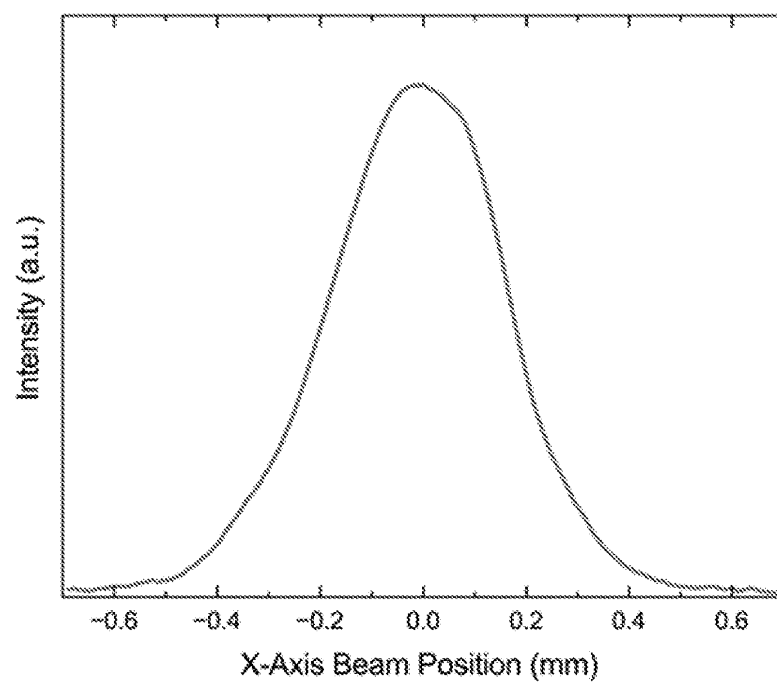


FIG. 23B

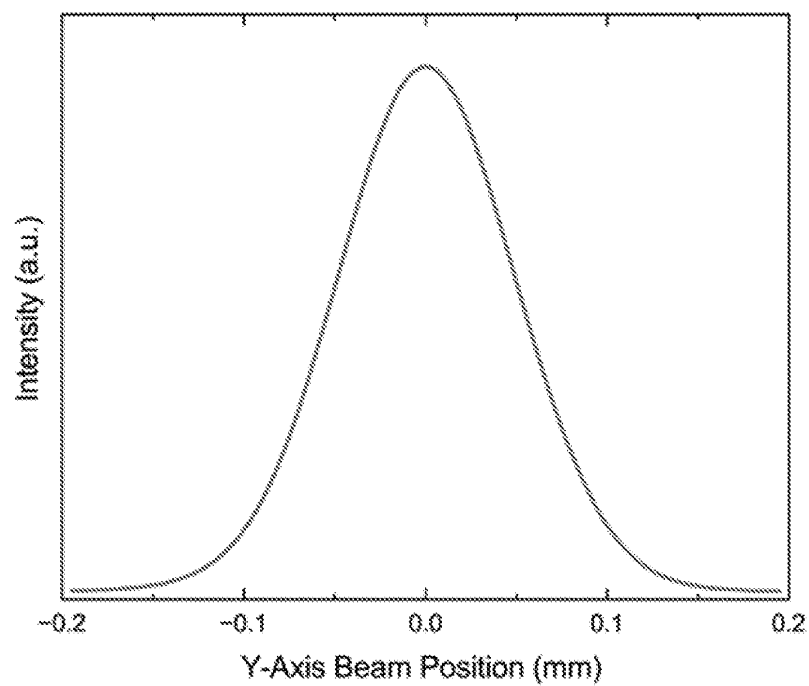


FIG. 23C

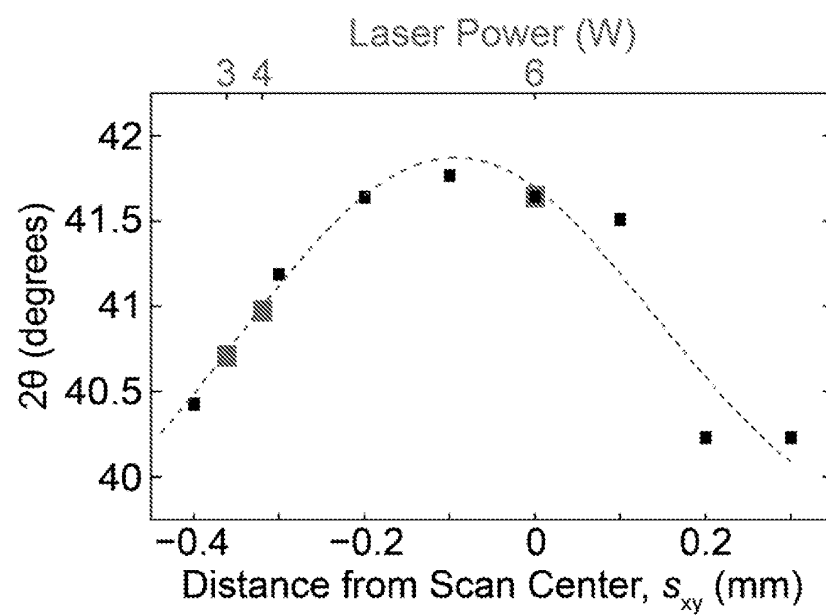


FIG. 24A

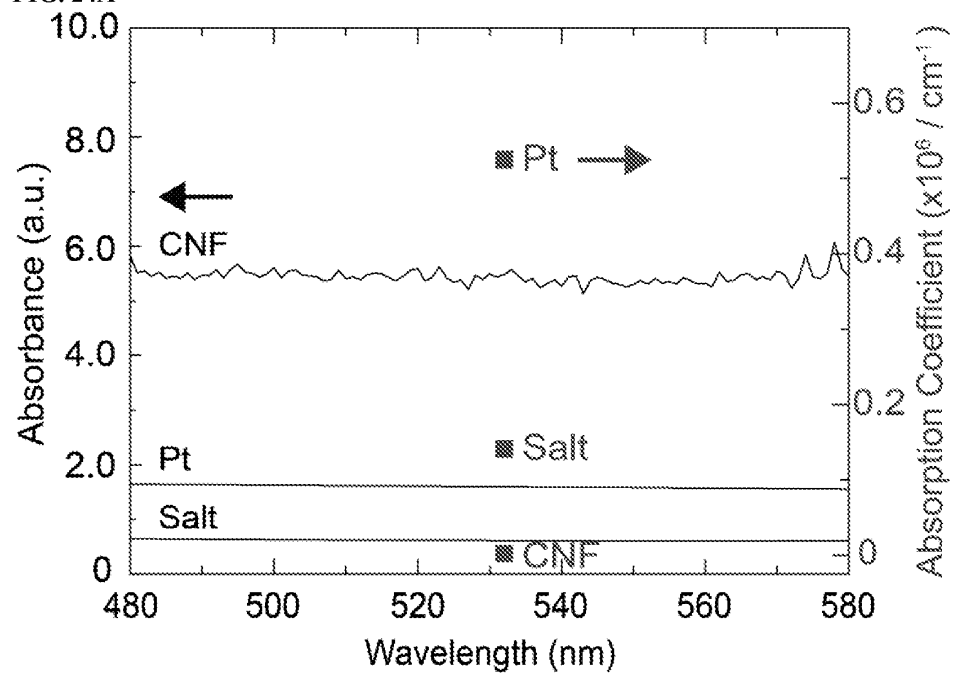


FIG. 24B

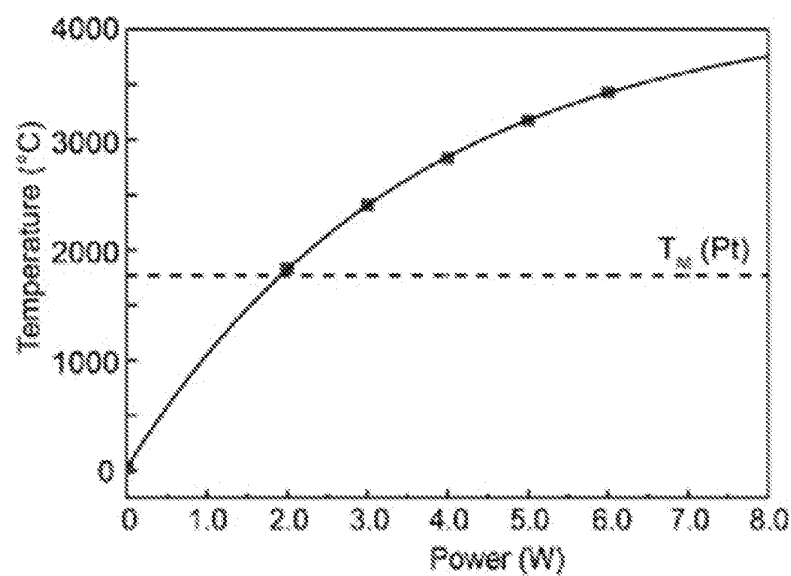


FIG. 24C

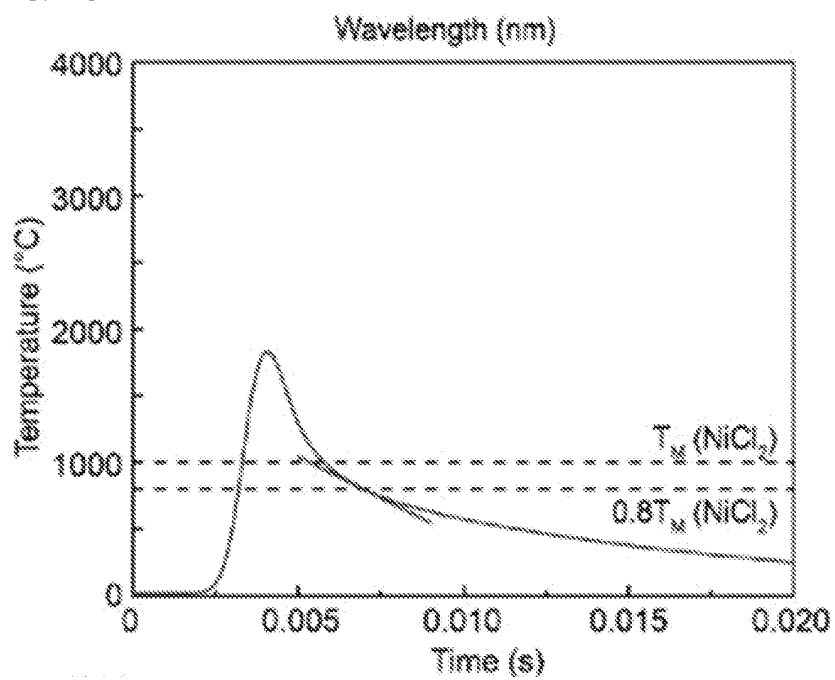


FIG. 24D

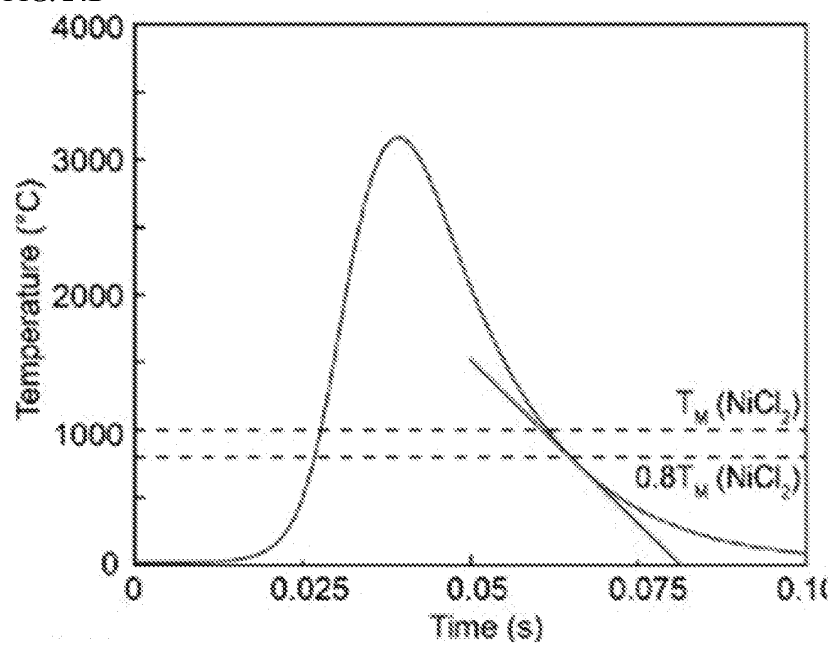


FIG. 24E

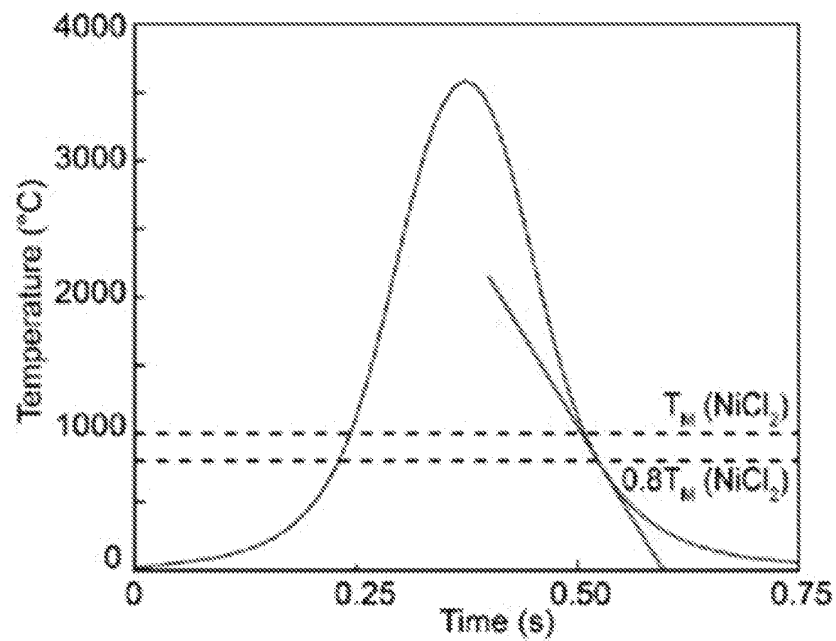


FIG. 24F

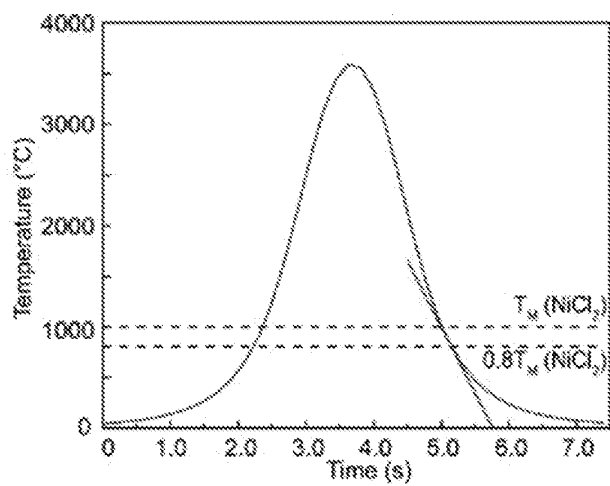


FIG. 25A

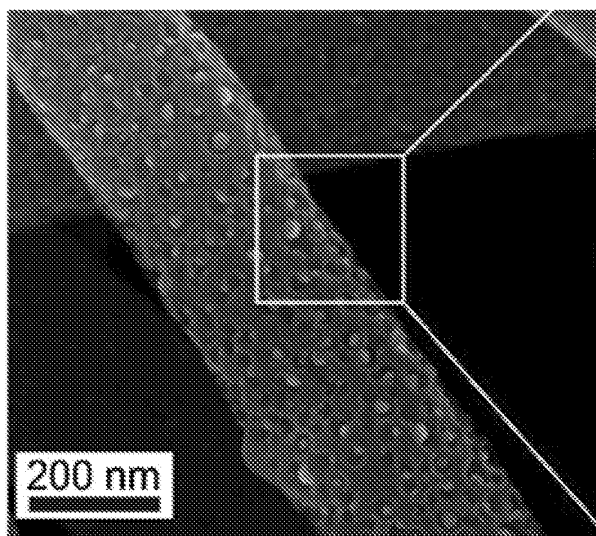


FIG. 25B

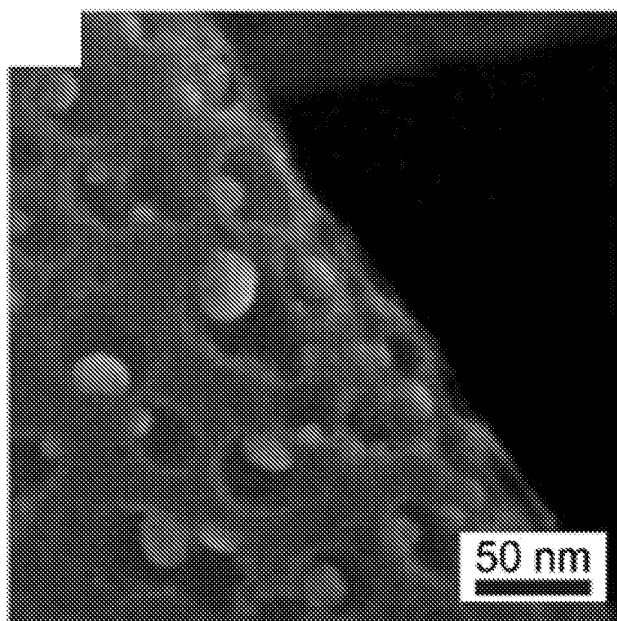


FIG. 26A

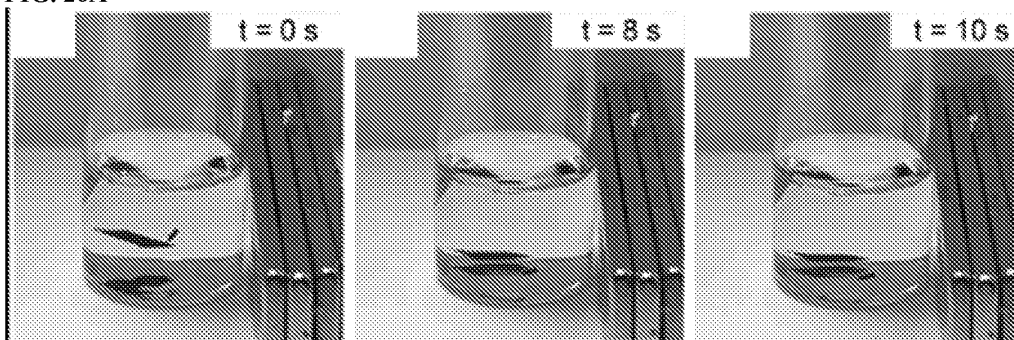


FIG. 26B

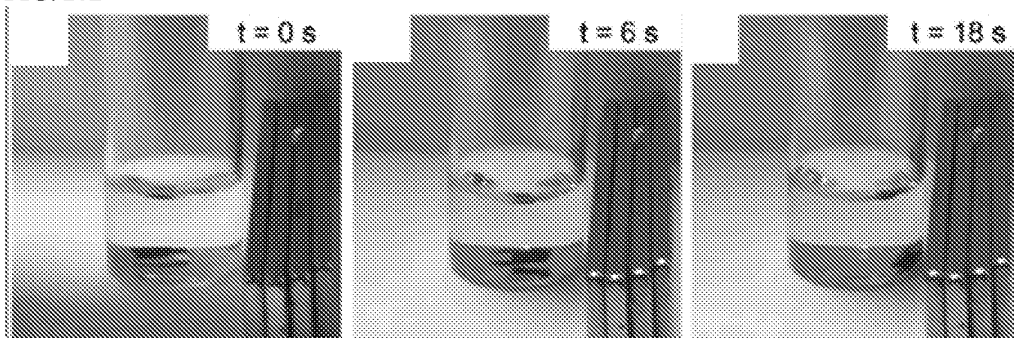


FIG. 27A

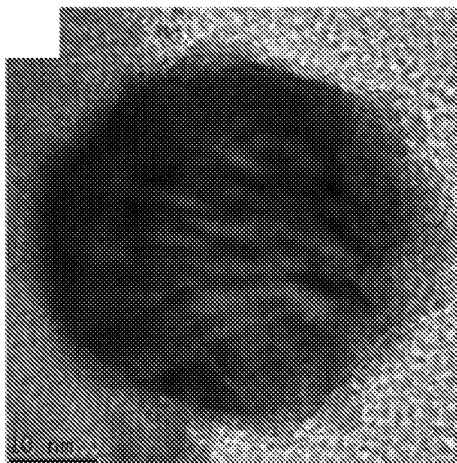


FIG. 27B

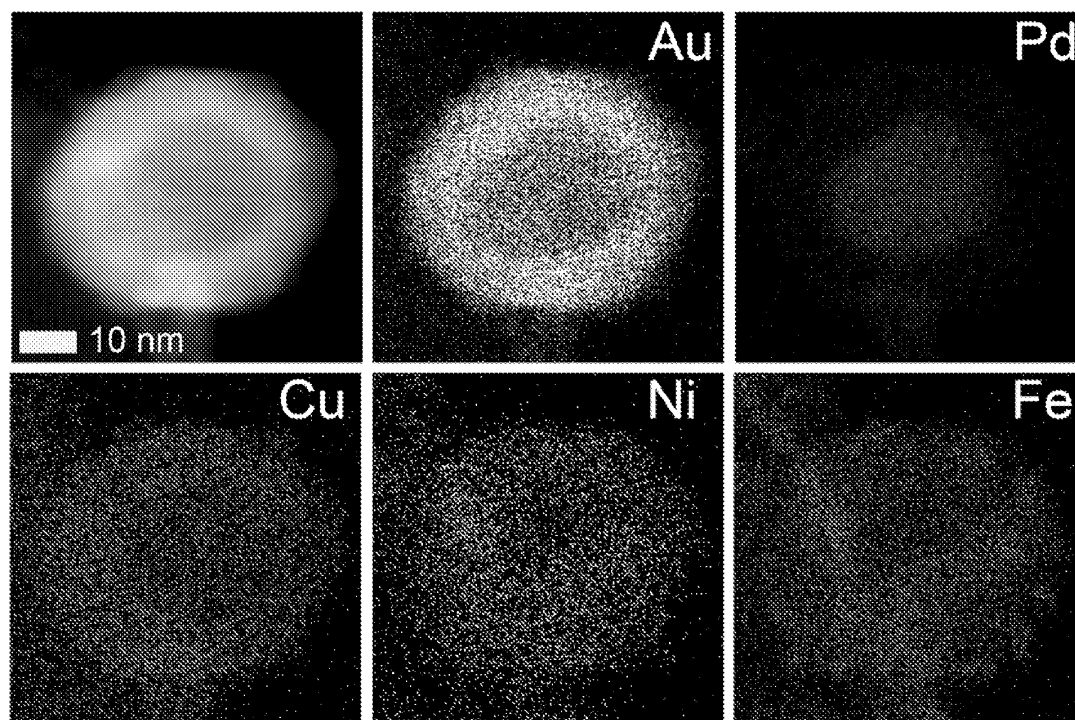


FIG. 27C

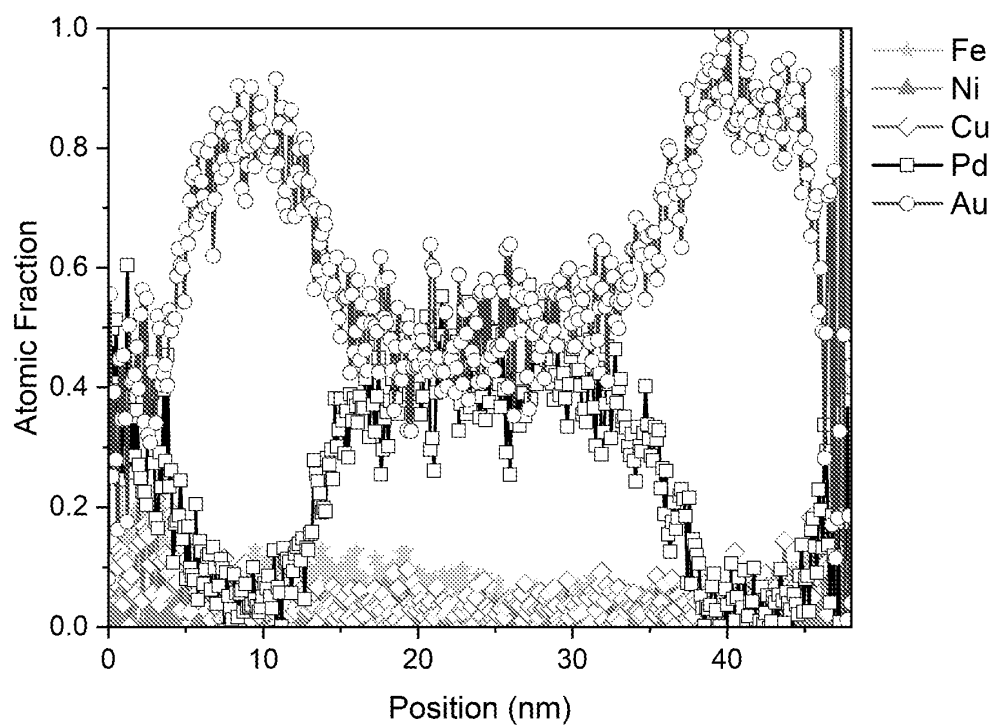


FIG. 28A

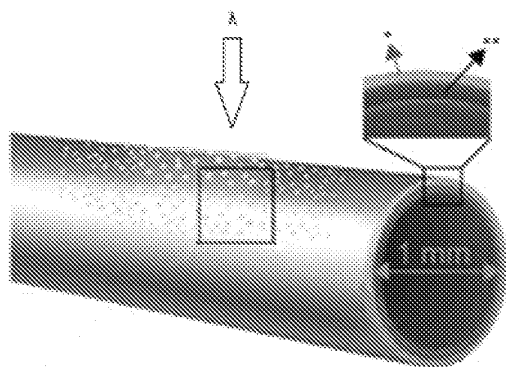


FIG. 28B

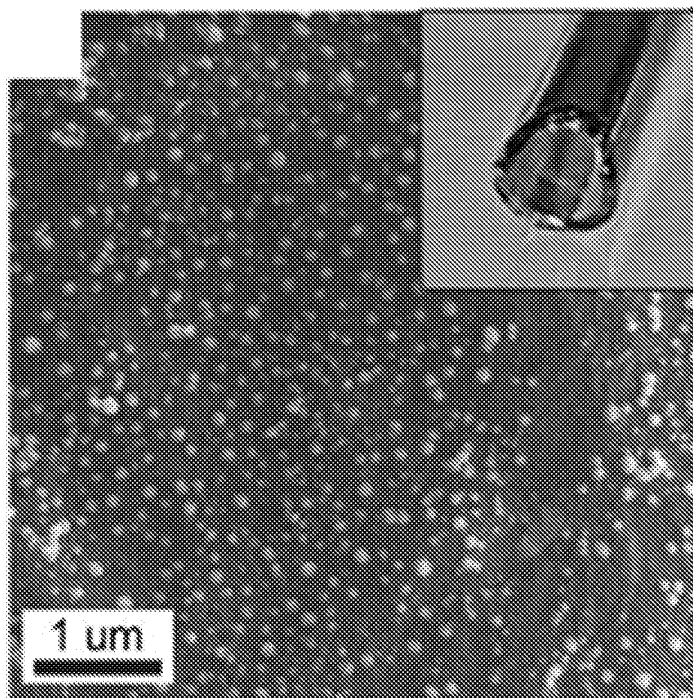


FIG. 29A

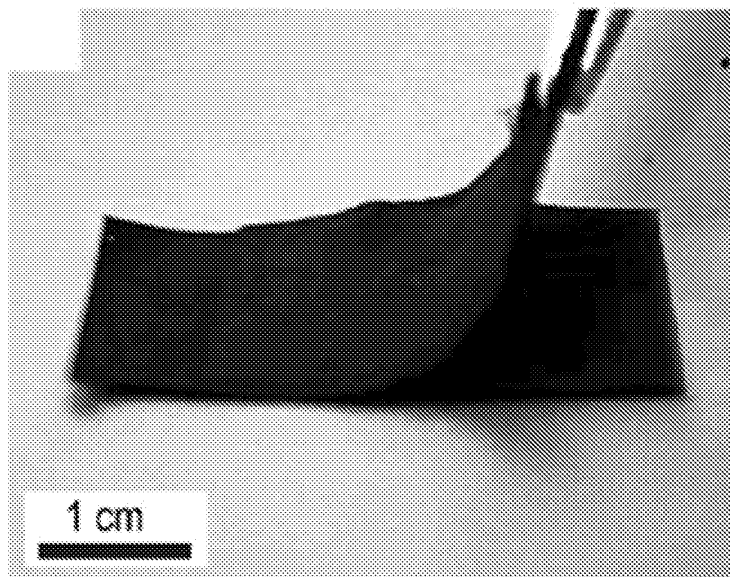


FIG. 29B

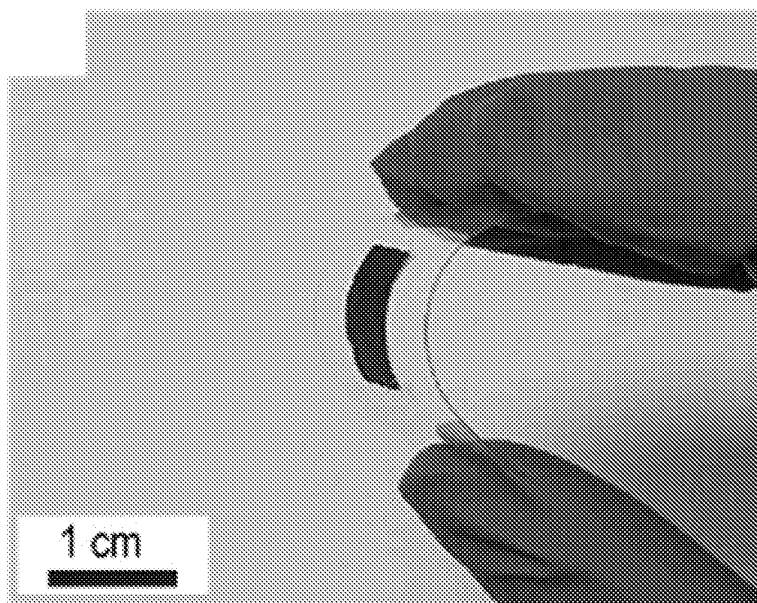


FIG. 30A

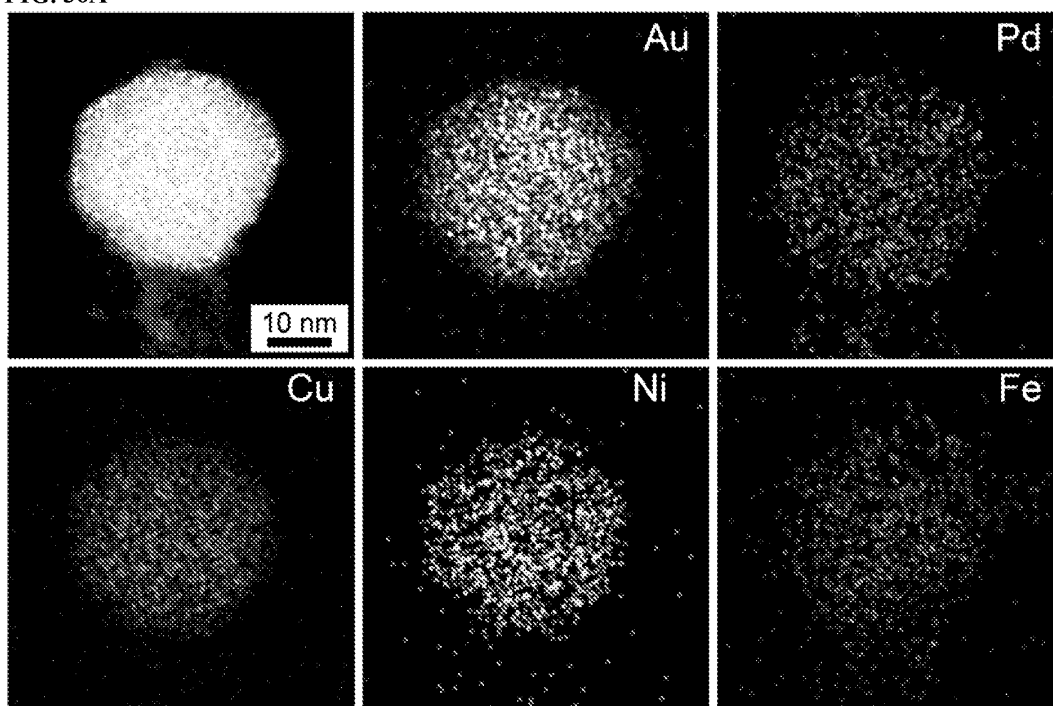


FIG. 30B

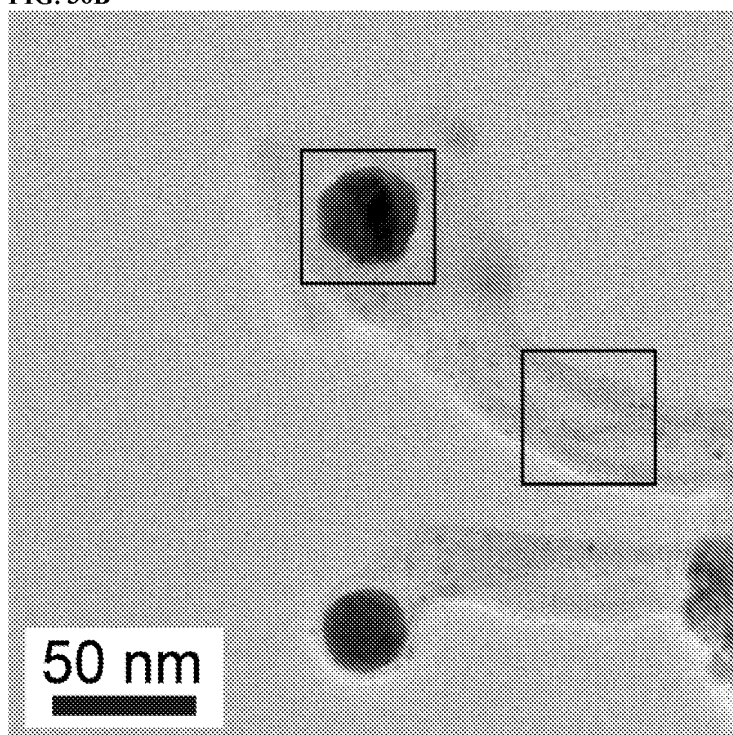


FIG. 30C

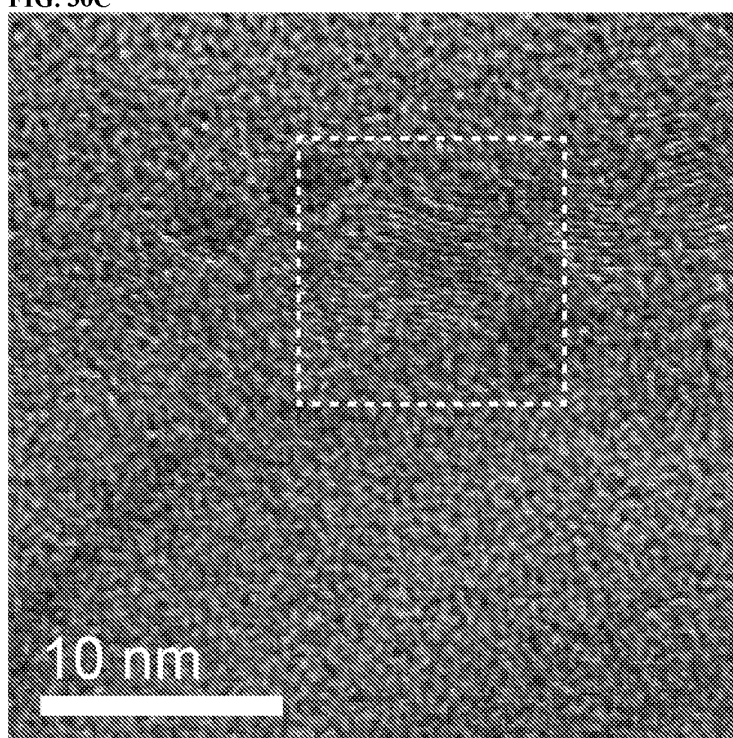


FIG. 31A

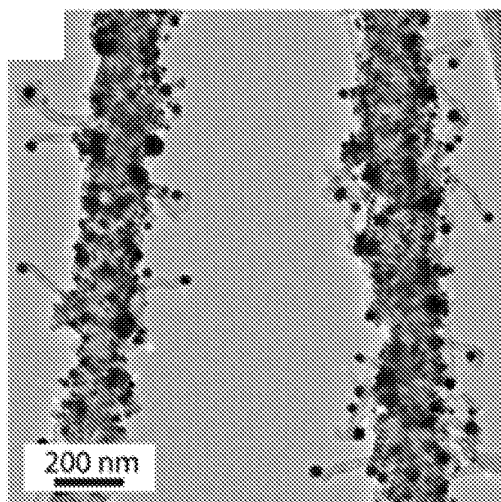


FIG. 31B

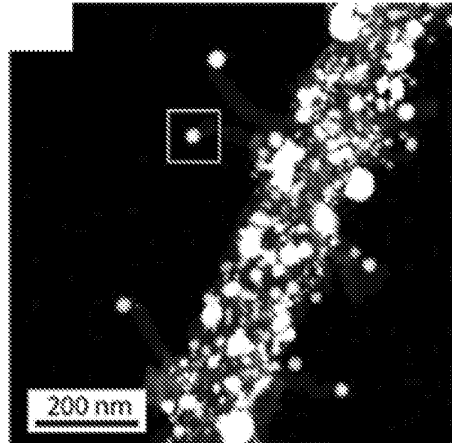


FIG. 31C

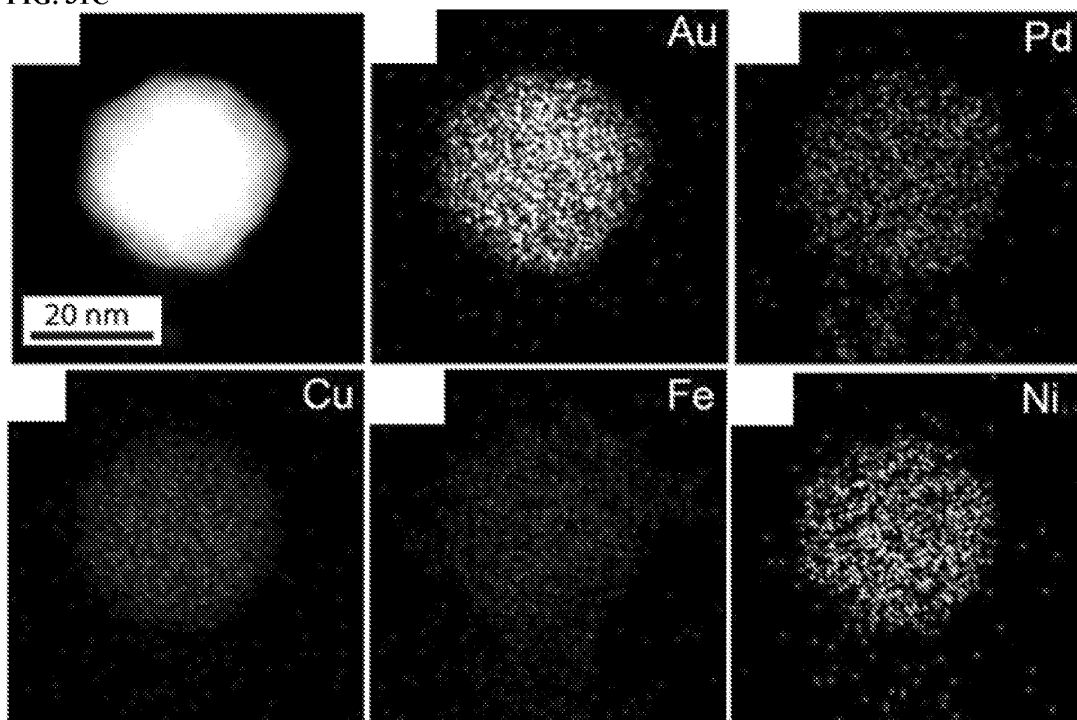


FIG. 32

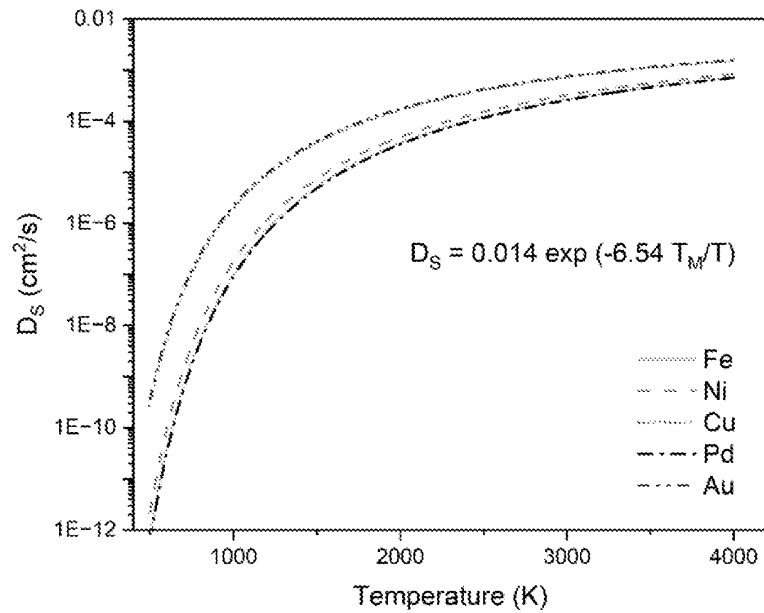


FIG. 33

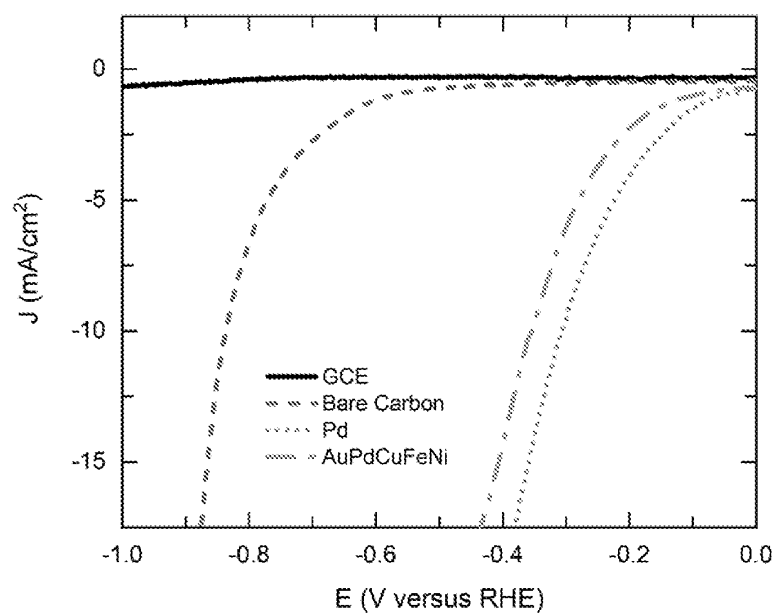


FIG. 34

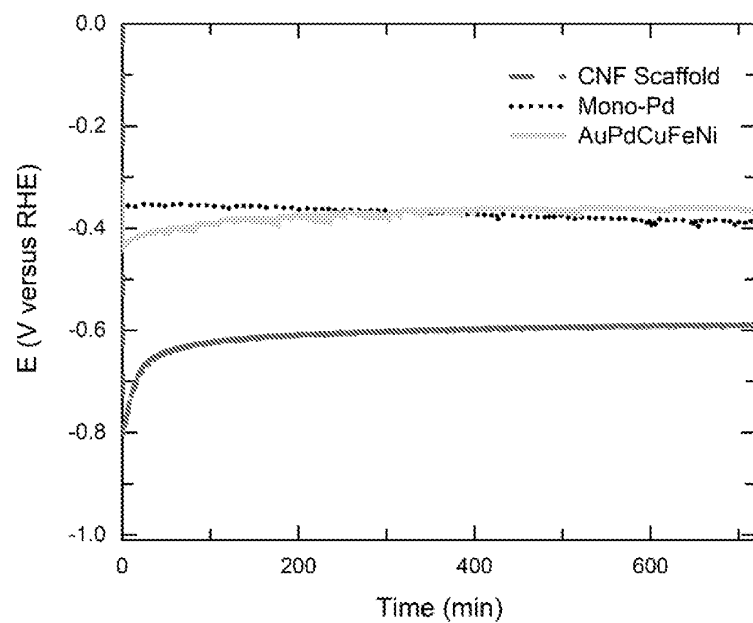


FIG. 35

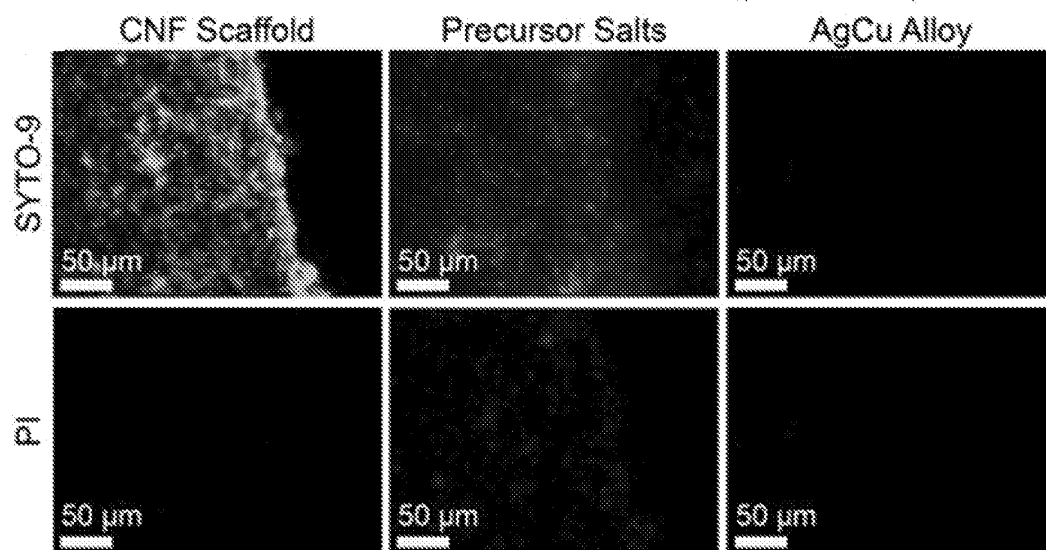


FIG. 36A

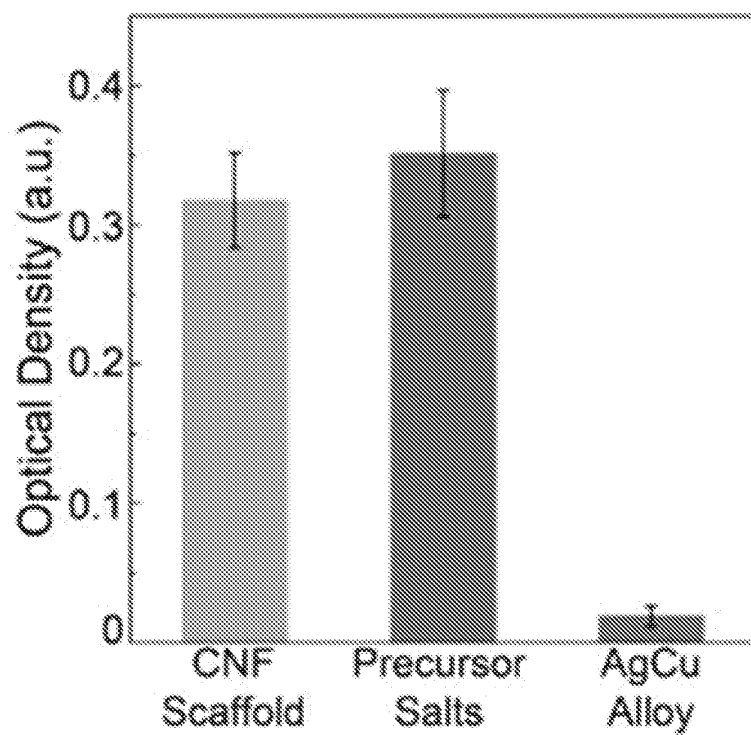


FIG. 36B

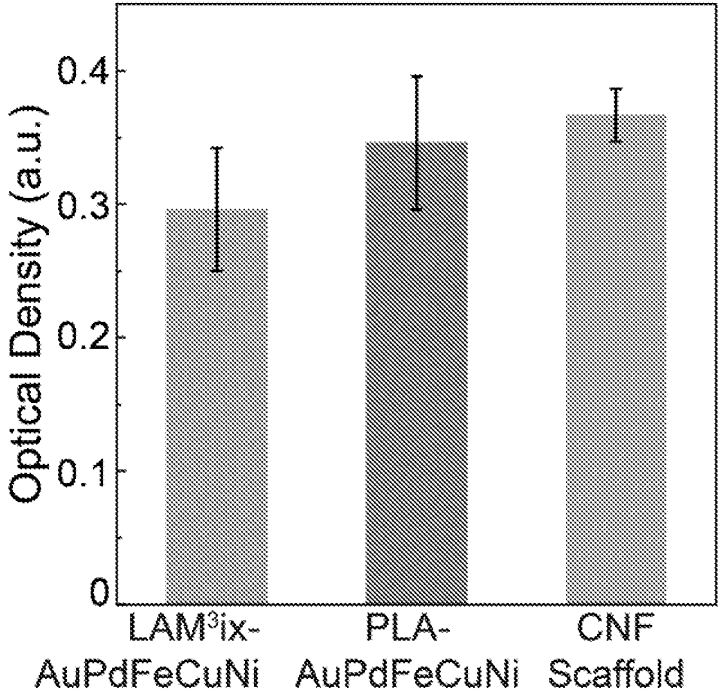


FIG. 37

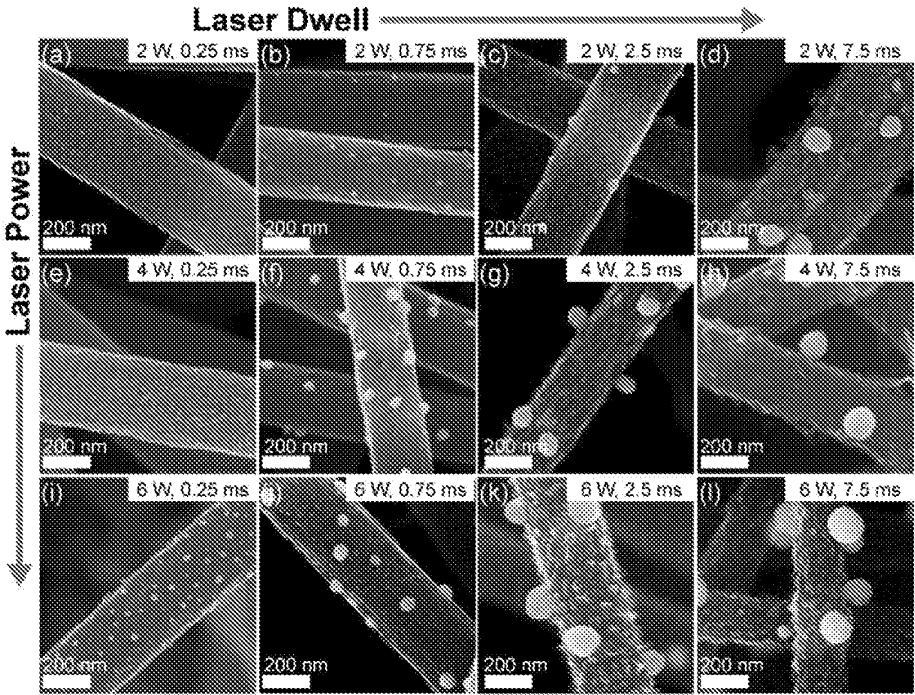


FIG. 38A

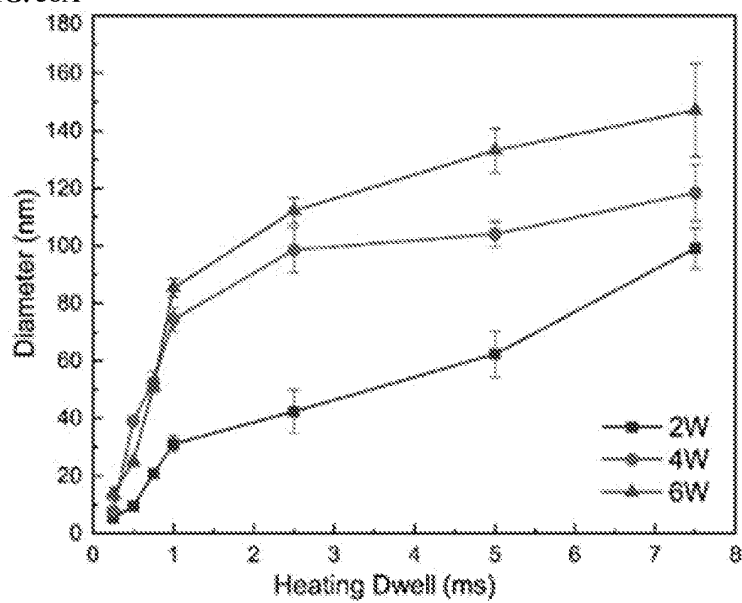


FIG. 38B

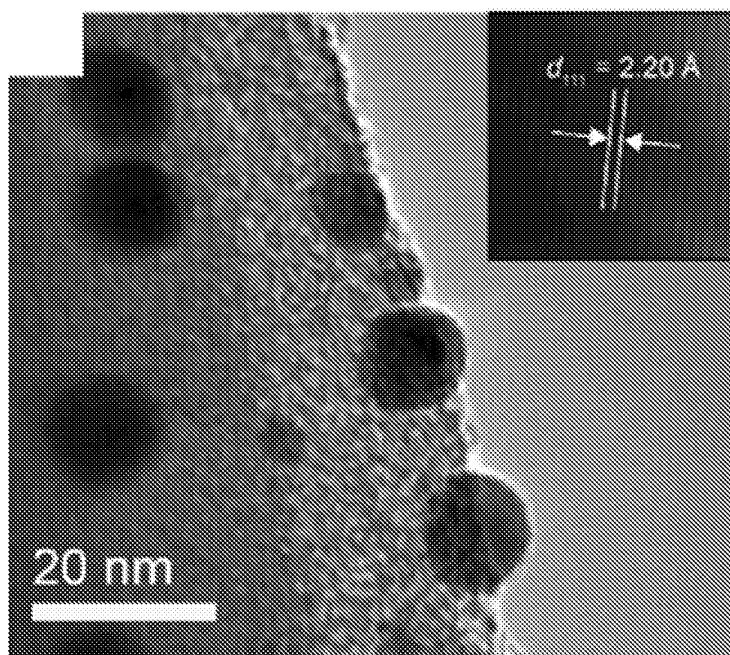


FIG. 39A

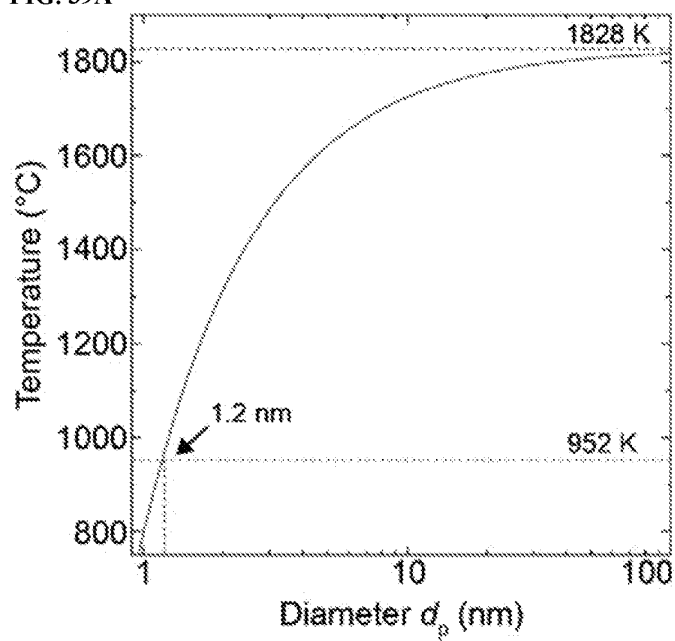


FIG. 39B

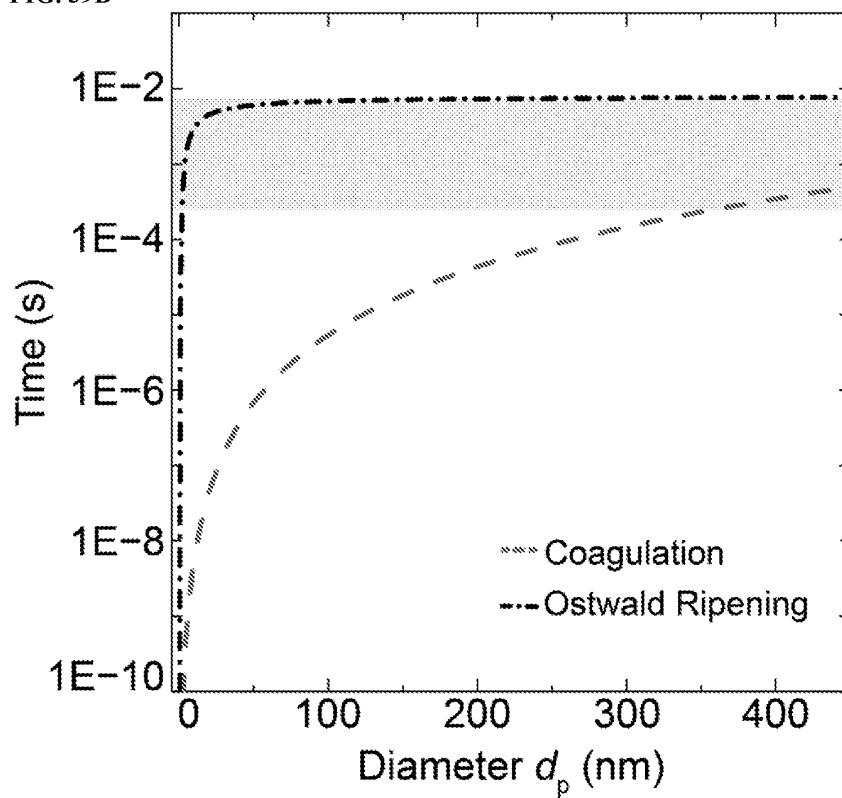


FIG. 40

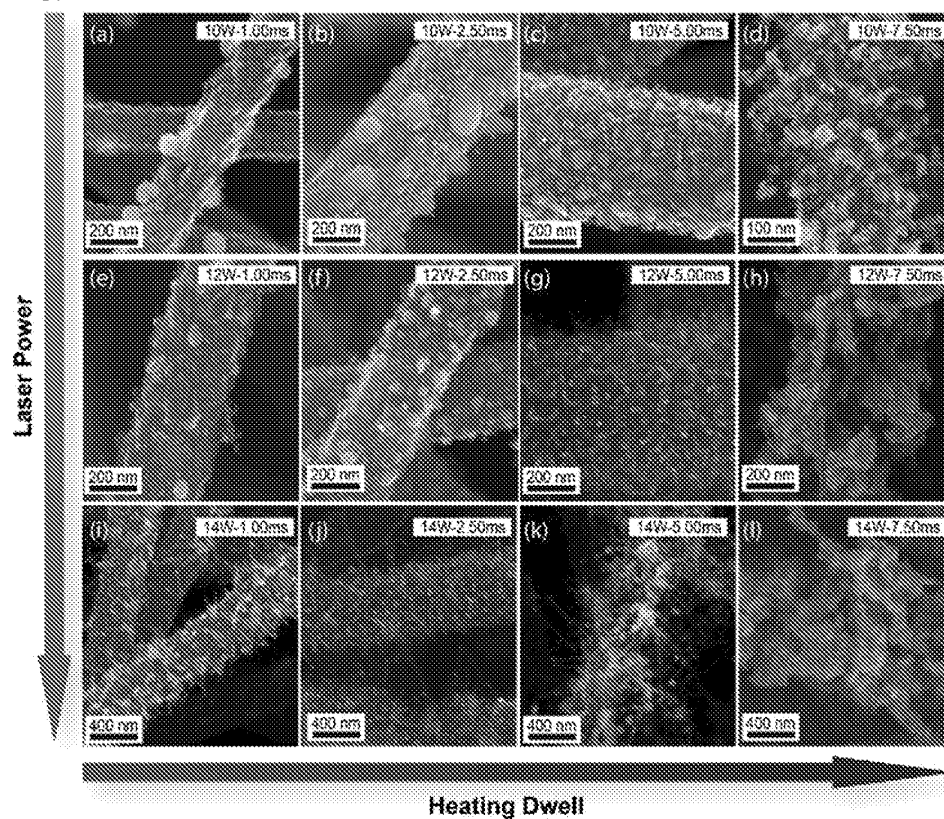


FIG. 41

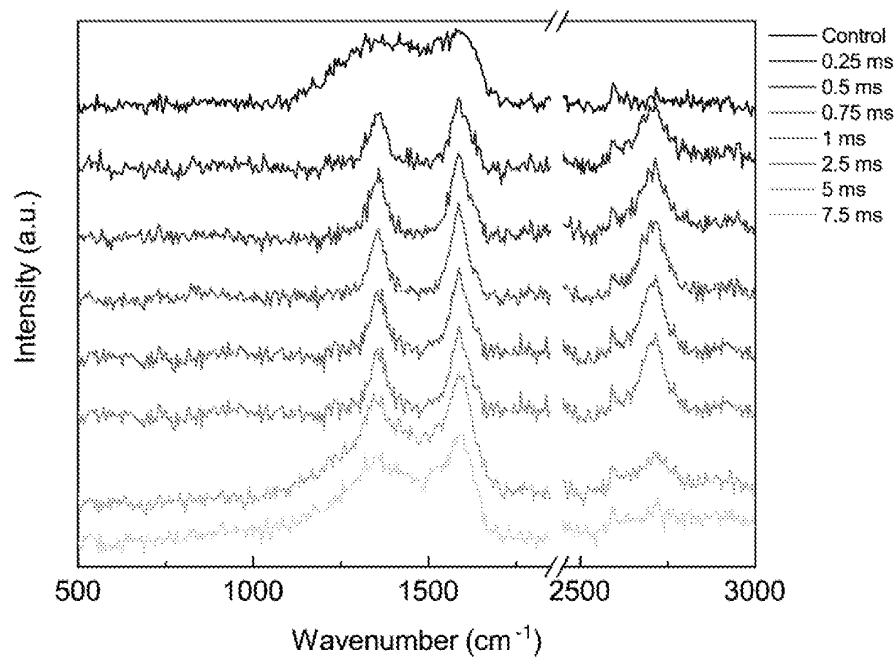


FIG. 42A

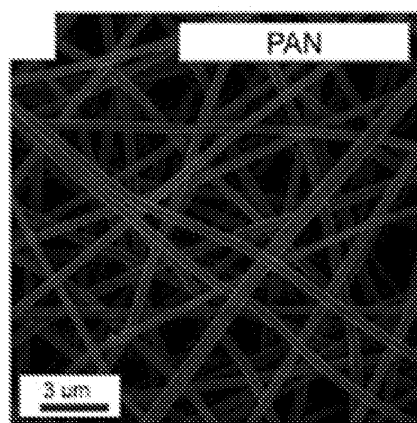


FIG. 42B

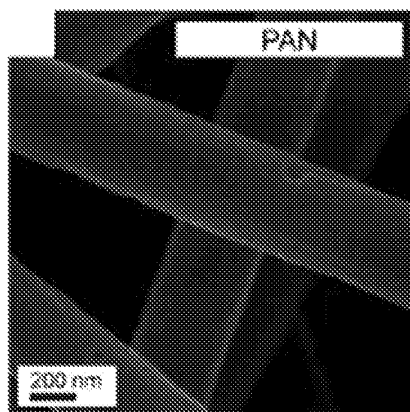


FIG. 42C

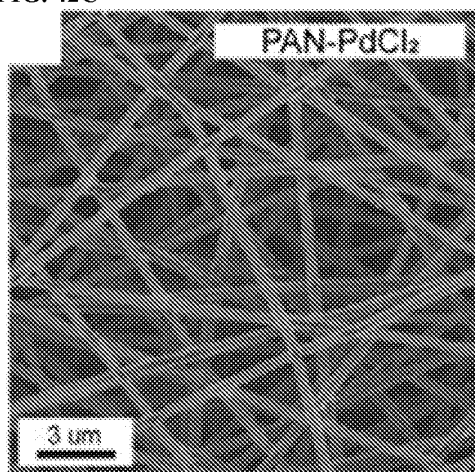


FIG. 42D

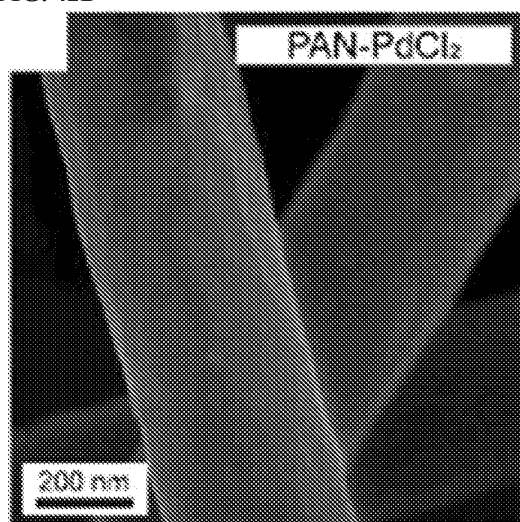


FIG. 42E

