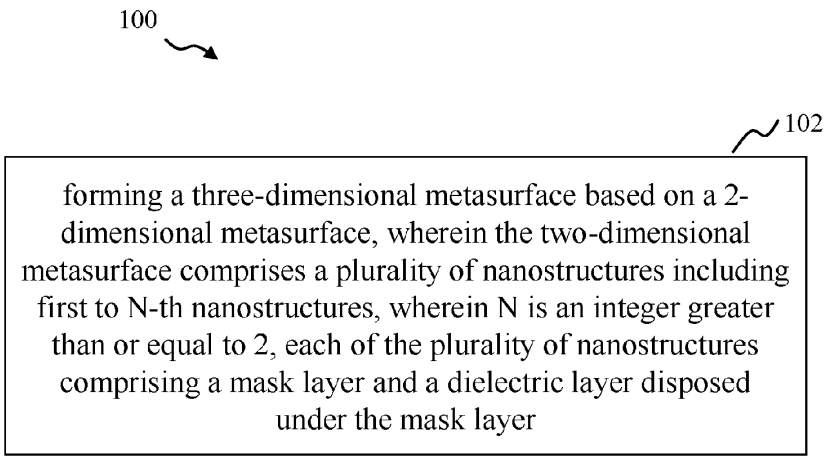

100
102
forming a three-dimensional metasurface based on a 2-dimensional metasurface, wherein the two-dimensional metasurface comprises a plurality of nanostructures including first to N-th nanostructures, wherein N is an integer greater than or equal to 2, each of the plurality of nanostructures comprising a mask layer and a dielectric layer disposed under the mask layer

FIG. 1

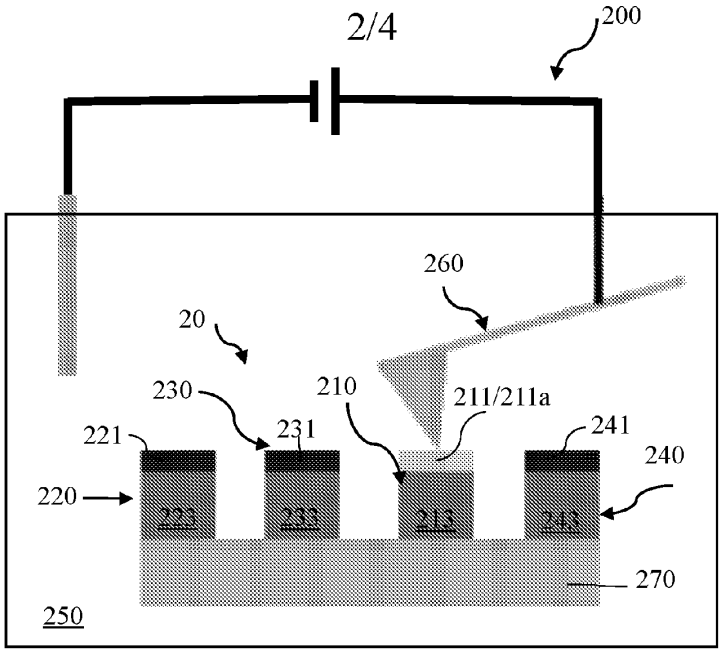


FIG. 2A

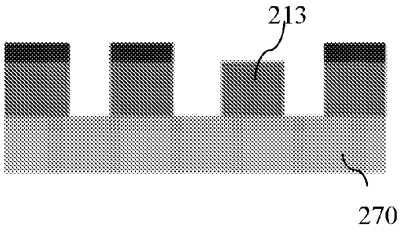


FIG. 2B

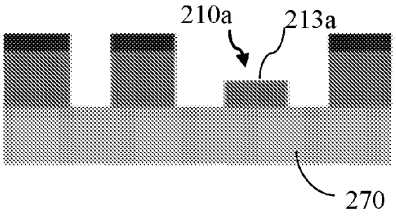


FIG. 2C

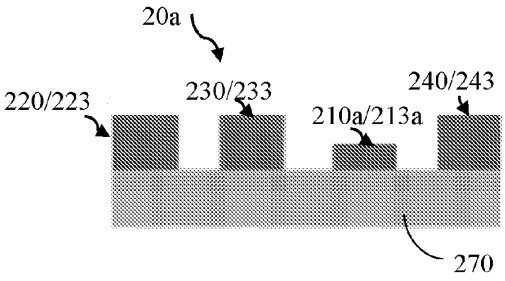


FIG. 2D

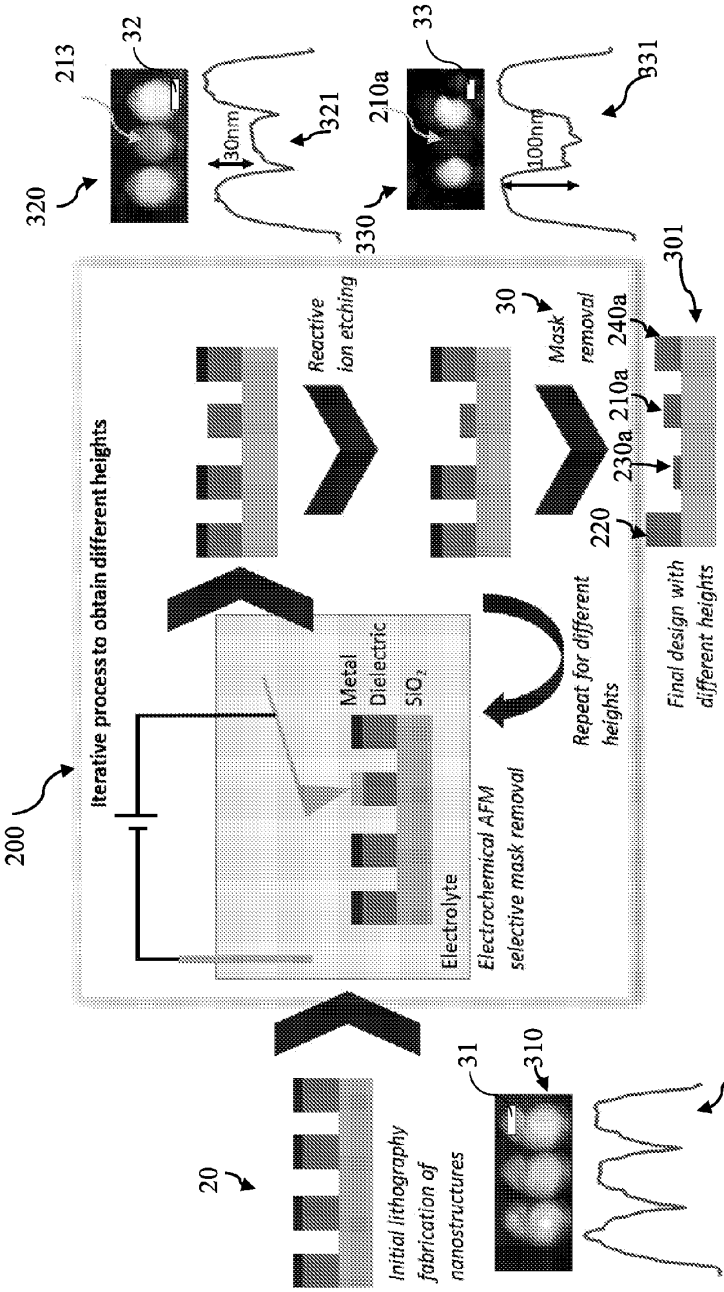

200
Iterative process to obtain different heights
20
Initial lithography fabrication of nanostructures
31
310
311
Metal
Dielectric
SiO_2
Electrolyte
Electrochemical AFM selective mask removal
Repeat for different heights
Reactive ion etching
30
Mask removal
220
230a
210a
240a
301
Final design with different heights
320
213
32
30nm
321
330
210a
33
100nm
331

FIG. 3

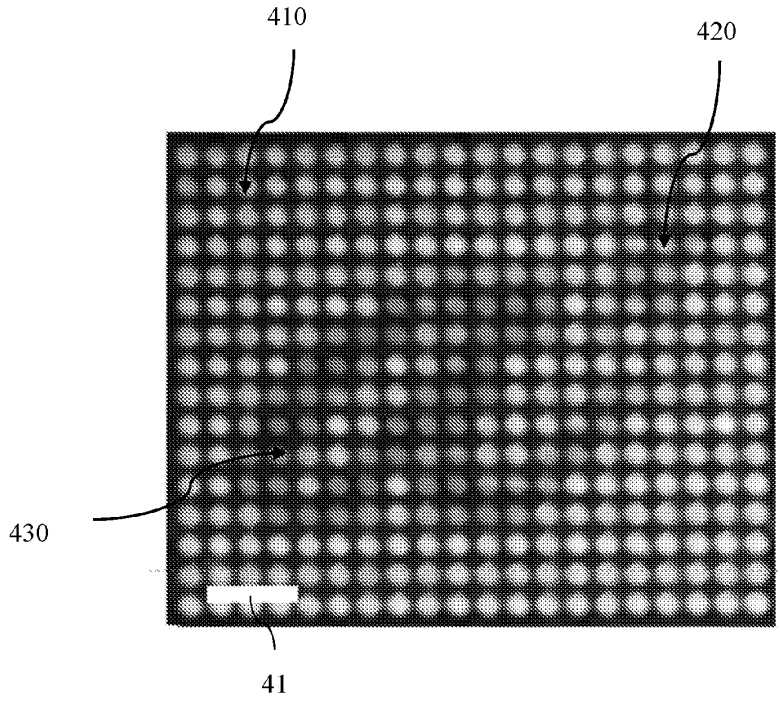


FIG. 4