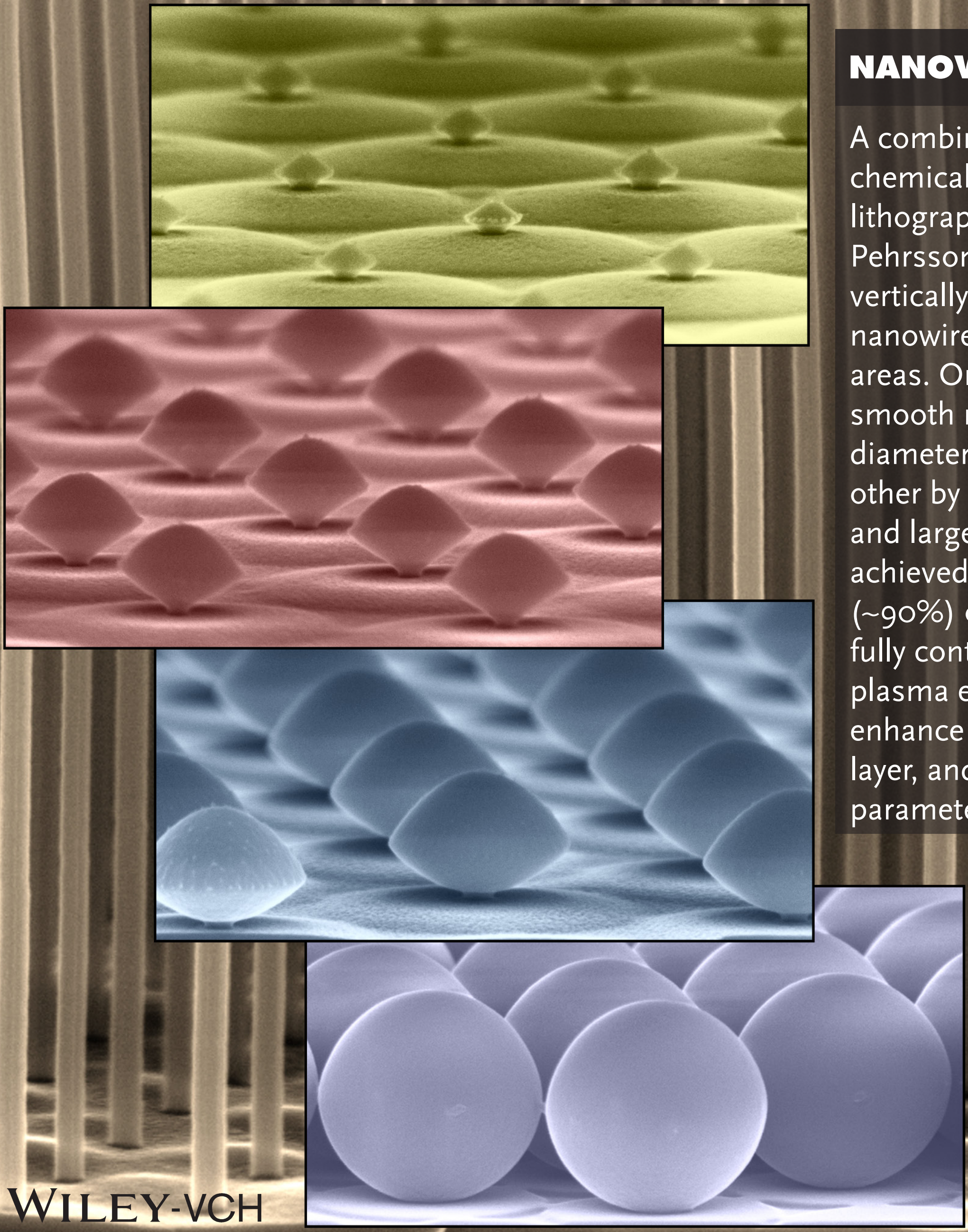
ADVANCED
FUNCTIONAL
MATERIALS



NANOWIRES

A combination of metal-assisted chemical etching and nanosphere lithography is used by P. E. Pehrsson and co-workers to make vertically aligned, crystalline silicon nanowire arrays over multiple cm^2 areas. On page 106, these relatively smooth nanowires are 55 nm in diameter and are separated from each other by 490 nm. The smoothness and large pitch-to-diameter ratio are achieved through large-scale reduction (~90%) of the nanospheres by carefully controlled inductively coupled plasma etching, a Ti adhesion layer to enhance the lift-off yield of the catalyst layer, and optimized catalyzed etching parameters.

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