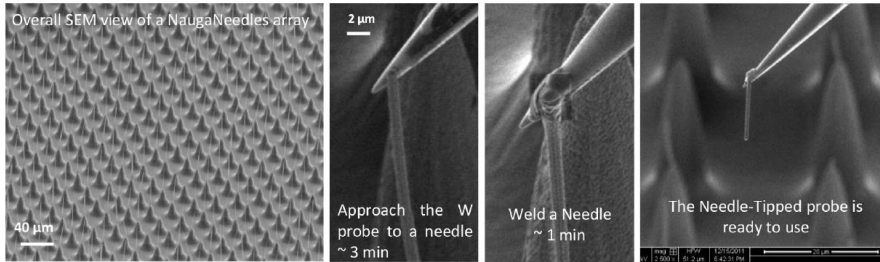
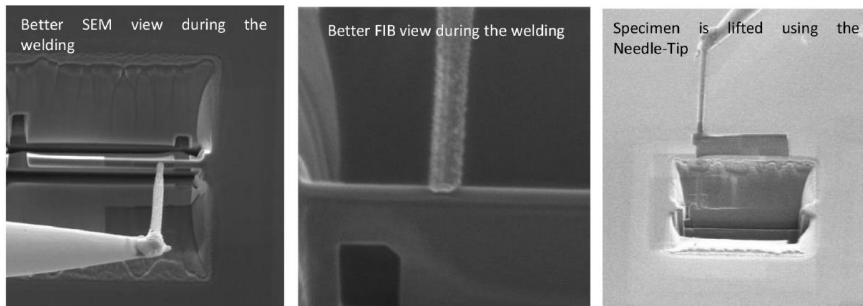


NaugaNeedles' Nanoneedles Array for TEM Sample Preparation (NN-ARRAY)



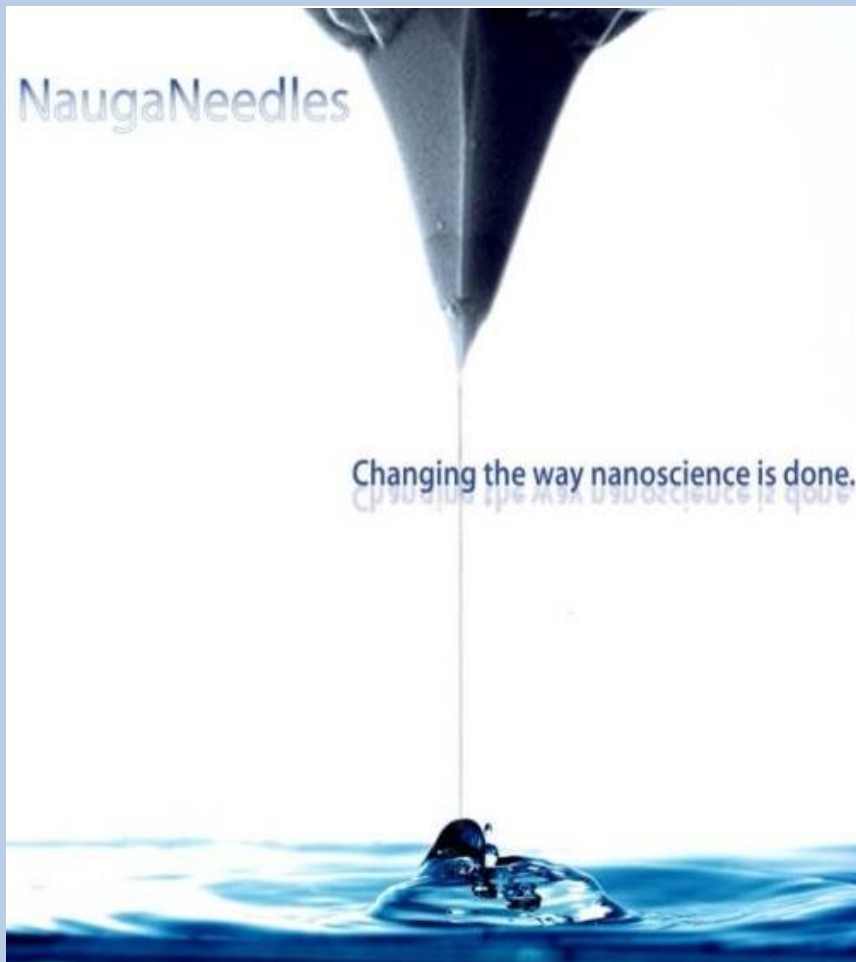
NaugaNeedles introduces a unique product called NNArray™. The NNArray™ is an array of nanoneedles that are formed on prefabricated silicon microstructures. The NNArray™ is used to provide a method and apparatus of restoring sharp probes attached to the manipulator inside a dual beam (FIB-SEM) without a need to open up the vacuum chamber. The NNArray™ for in-situ restoration of probe tips saves considerable time and resources. The time required for sharpening a tungsten probe using NNArray™ is less than 10 minutes. While the time for sharpening a tungsten probes using FIB more than 20 minutes. In addition, the tungsten probes need to be changed (by breaking the vacuum and opening the chamber) after 4 to 5 times of sharpening the probes.

The NNArray™ is also used for construction and application of various shapes of nanoforks inside a FIB vacuum chamber. The nanoforks are used to handle specimen without the need to weld the specimen to the probe. Each NNArray™ includes more than a thousand silver/gallium nanoneedles that can last several months of supply for the in-situ lift-out process. Nanoneedles are between 15 and 50 µm in length and 600 to 1000 nm in diameter.



NN

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