New Technique of Scanning Probe Parallel Nanolithography **Using Individually Driving Multi-Probe Cantilever Array**



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ABSTRACT: This research developed an individually driving one-dimensional (1-D) multi-probes cantilever array used in a scanning probe parallel nano writing system. The multi-probes cantilever array comprises two kinds of probes for writing and sensing. The writing probes each have thermal actuators for on-off switching contact between the probes and a sample surface, whereas sensing probes function as a piezoresistive sensor for detecting a deflection of the cantilever array. This study designed and manufactured the multi-probes cantilever array on the basis of electro thermo-mechanical coupled analyses.

Experimental Procedure



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probes and a sample. Therefore, this research has decided to employ the cantilever array with the

heater pattern of Type E as the final design of the multi-probes cantilever array for the SPNL



The multi-probes cantilever array and heater patterns were fabricated well.

each other.

writing-probes cantilevers were individually controlled without cross talk