

Research Topics 1999



Patterning Thin Films for Sensors

Objectives

To develop optimal physical vapour deposited conducting films, and to demonstrate rapid, high resolution patterning of the films on a variety of planar and shaped substrates with the aim of developing embedded sensors.

Expected Outcomes

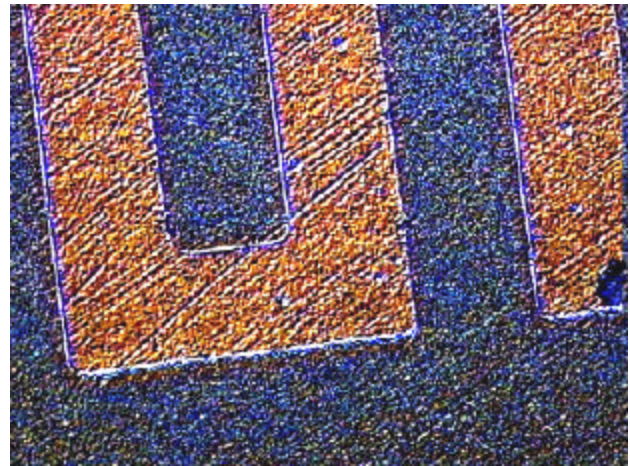
Copper and aluminium conductive films are deposited on a variety of glass, ceramic and polymer substrates. Laser ablation is a rapid patterning process, however since it largely removes thin films by an ablative shock, the resolution of the pattern depends critically upon the film thickness, substrate preparation, and the microstructure of the deposited conductor. We aim to develop films, pattern them and embed them in hard machining coatings (e.g. TiN or diamond-like-carbon) to be able to instrument machine tooling with high spatial and temporal resolution.

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A 20 micrometer wide copper tracks patterned on a TiN coating.