



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

Name of the Student : **Kaniska Murmu**

Roll Number : **166107028**

Programme of Study : **Ph.D.**

Thesis Title : **Micro/Nano Patterning on Solid Surface**

Name of Thesis Supervisor(s) : **Dr. Partho Sarathi Gooh Pattader**

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SHORT ABSTRACT

This thesis focuses on the low-cost approach for long-range pattern formation with polymers. The size of the features varies from micro to nano. We investigate a variety of polymeric structures comprising straight to undulated micro-threads or micro/nanodroplets of homo or blend polymers. The methodology, which has been adopted here, is a form of self-assembled micro/nanostructures from a moving contact line, termed as dynamic contact line lithography (DCLL). The method, DCLL, is generic in nature. The first three problems, are based on the surface engineering of a Si/glass substrate. We investigate different morphological structures fabricated using different combinations of polymers & solvent exploiting DCLL, and at the last problem, we develop an energy harvesting device using piezoelectric polymer, which shows the potential of DCLL in modern low-cost technology.