

## **Mask design and simulation: Computer aided design for lab-on-chip application**

### **Abstract**

A simple design and simulation of microwire, contact pad and microfluidic channel on computer aided design (CAD) for chrome mask fabrication are described. The integration of microfluidic and nanotechnology for miniaturized lab-on-chip device has received a large research attention due to its undisputable and widespread biomedical applications. For the development of a micro-total analytical system, the integration of an appropriate fluid delivery system to a biosensing apparatus is required. In this study, we had presented the new Lab-On-Chip design for biomedical application. AutoCAD software was used to present the initial design/prototype of this Lab-On-Chip device. The microfluidic is design in such a way, that fluid flow was passively driven by capillary effect. Eventually, the prototype of the microfluidics was simulated using Comsol Multiphysics software for design validation. The complete design upon simulation is then used for mask fabrication. Hence, three mask is fabricated which consist of microwire, contact pad and microfluidics for device fabrication using photolithography process.

**Keywords;** Auto CAD, Comsol Multiphysics, Mask Design, Medical Diagnostics, Microfluidic, Microwire