

## **The study of the good polishing method for polymer SU-8 waveguide**

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This research focused on polish characteristic of polymer based waveguides. The aim of the research was to show how polishing parameters affect the cut length of the end surface of SU-8 polymer on silicon and to determine the best parameters for polishing SU-8 polymer. Then, four samples were used for characterizing the polishing of polymer. Each sample was polished with the same rotation and sandpaper size but with different rotational speed. The experiment result shows that the best rotational speed for polishing polymer SU-8 sample on silicon is 200 rpm.

Keywords: waveguides polishing, SU-8 polymer, rotational speed, sandpaper, silicon, cut off length.

### **1. Introduction**

The efficiency of waveguide is influenced by the structure of its side surface. The best surface quality is needed for the grafting process between the fibre optic and the waveguide to increase the efficiency of fibre optic interface and waveguide. This shows that the polishing process is needed to optimize the performance and efficiency of the waveguide. However, for the time being, there is no reference as to the waveguide polishing rate. Hence, this research has been conducted to show how polishing parameters affect the cut length of end surface of SU-8 polymer on silicon and to determine the best parameters for polishing SU-8 polymer.

#### **1.1. Polymer waveguide**

Expansion of photonic field is closely related to the progress made known in material fabrication and also the advanced knowledge in the field of physics. Research into multi-functional inorganic material has been actively conducted, and this includes