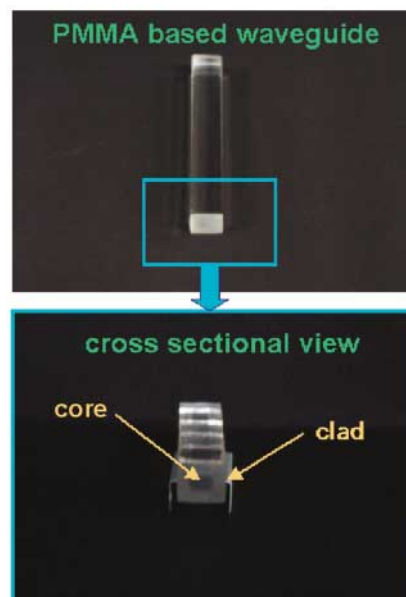


A Novel Fabrication Method of Optical Devices

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Different kinds of novel fabrication methods of thin films using a vacuum technique are developed. One is the vapor transportation method of an organic compound with a high sublimation pressure, and the other is the direct injection of solution containing organic compounds into a vacuum chamber. Characteristics of the films made by the present methods are high quality: the films are free from residual solvent and film thickness is controllable below 100 nm. Moreover, a layer-by-layer structure with different kinds of organic compounds can be prepared. These methods are very important to fabricate organic optical devices such as polymer waveguides (Fig.) and organic memory media.



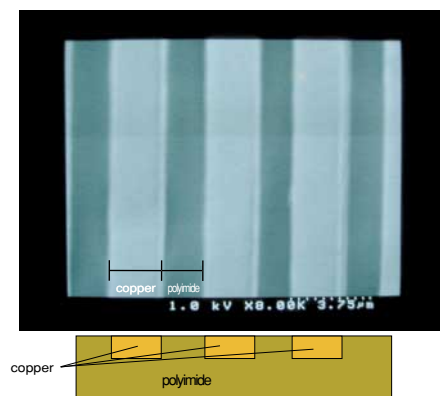
PMMA waveguide produced by the present method

Fabrication of Insulating Films by Electrodeposited Polyimide

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For high performance electron device, packaging and interconnection with high-density fine wiring has been required. For this purpose, a realization of precise high-density integration such as microstrip lines, strip lines, and coaxial lines becomes essential.

The polyimide has good characteristics as insulating films such as low dielectric constant, high heat-resistance. It is suitable for the fine high-density wiring process. However, it is difficult to obtain sufficient coverage and uniformity on a large area by the conventional spin coating method. As a fabricating method of new polyimide film, a thin film preparation method by electrodeposition technique was examined using a colloidal polyimide solution.



Scanning electron micrograph of polyimide insulating film and copper wiring