

## Glass Etching Assisted by Femtosecond Pulse Modification

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In this paper the etching of Pyrex glass assisted by femtosecond pulses is reported. The process consists of 2 steps: (1) irradiating the glass by focused pulses from a femtosecond laser, (2) etching the glass in diluted HF (hydrofluoric acid) a solution. The glass can be modified without cracking by applying a femtosecond laser with a very low intensity. The etched depth of Pyrex glass increases from 12 to 131  $\mu\text{m}$  with femtosecond laser irradiation from 0 to 1170  $\text{kJ}/\text{cm}^2$ , and etching in a 5% HF solution for 230 min. This technique provides an alternative way of achieving a high etching rate of Pyrex glass for applications to micro-electro-mechanical systems (MEMS), and of forming suspended structures on the surface of a Pyrex glass substrate by using modified glass as a sacrificial layer.

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