

Characterization and microfabrication of allylhydrocarbosilane glass microfluidic channels via imprint lithography

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Novel optically transparent materials with solvent resistant and high thermal stability have great potential for a variety of applications in modern technology and engineering, such as microelectromechanical systems (MEMS). SiC is a new class of polymer-derived ceramics whose starting material is a liquid-phase polymer. The main advantage of using preceramic polymer is their convenience in fabrication small and complicated structural features by using near-net shape processing techniques.

In this study, we reported on the fabrication of non-oxide ceramic microfluidic channels from preceramic polymers with soft lithographic techniques for the applicable potentials of the photochemical reaction. The preceramic polymer layer of the glass surface was cured by the UV and then thermal methods for complete crosslinking and formation of transparent, solvent resistant microchannels.