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## Low-pressure plasma-etching of organic materials for optical applications

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Direct plasma etching is a powerful method for producing antireflective nanostructures on transparent organic materials. The nanostructure formation depends on the chemical composition of the substrates and as well on the plasma conditions applied. The chemical composition of several organic materials modified using plasma was studied with infrared reflection absorption spectroscopy (IRRAS). The investigations indicate a change of chemical composition even during the first few seconds of plasma etching. It is assumed that the modified surface layer is essentially involved in the structure formation process. The most sophisticated optical application is a curved lens in which the antireflection function is maintained throughout the visible spectral range and over an extended range of incident light angles. A multiple etching process for polymer substrates and organic layers will be introduced. By depositing and etching of organic layers step-by-step on etched polymer substrate a broadband antireflective performance was achieved.

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