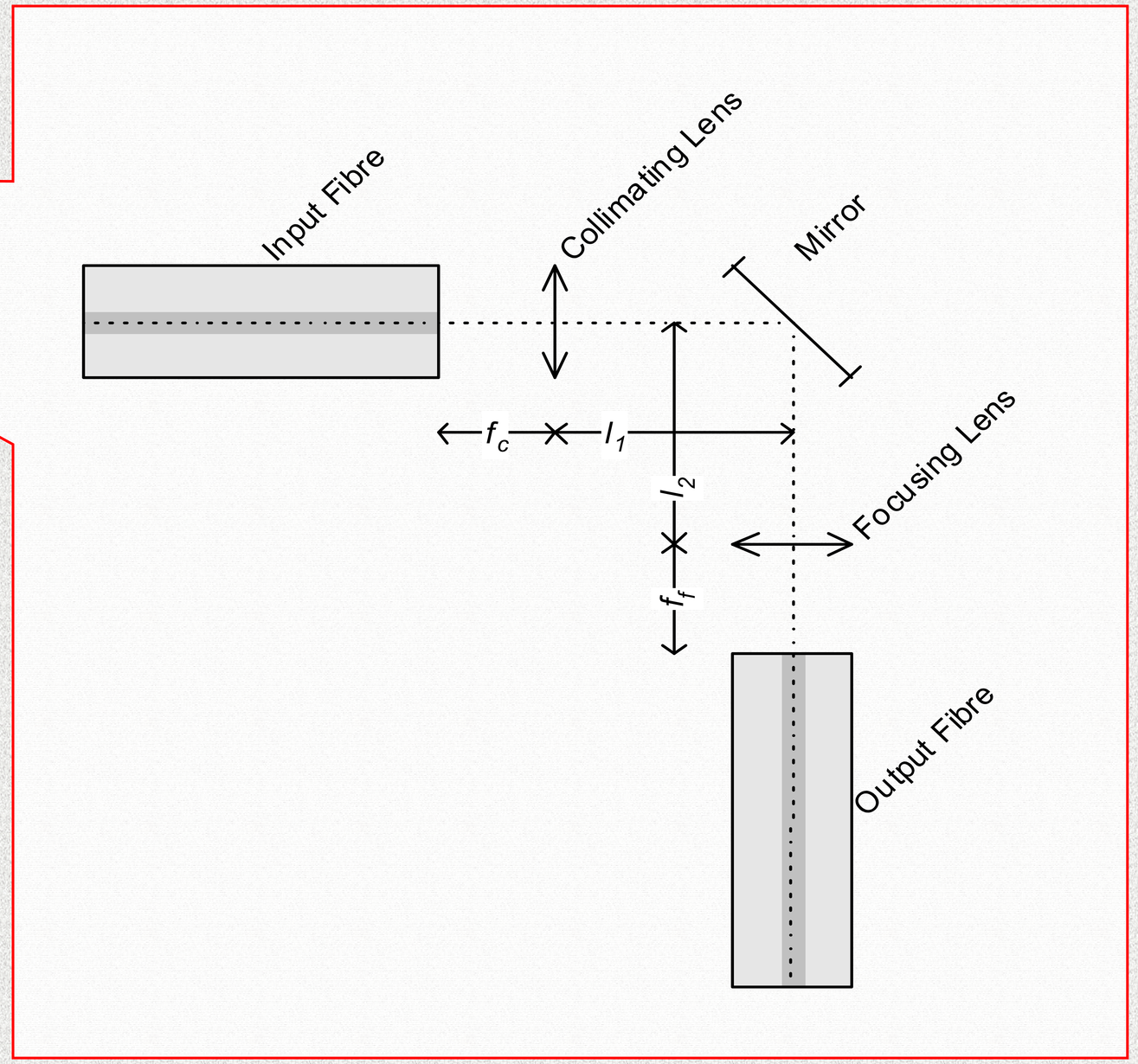
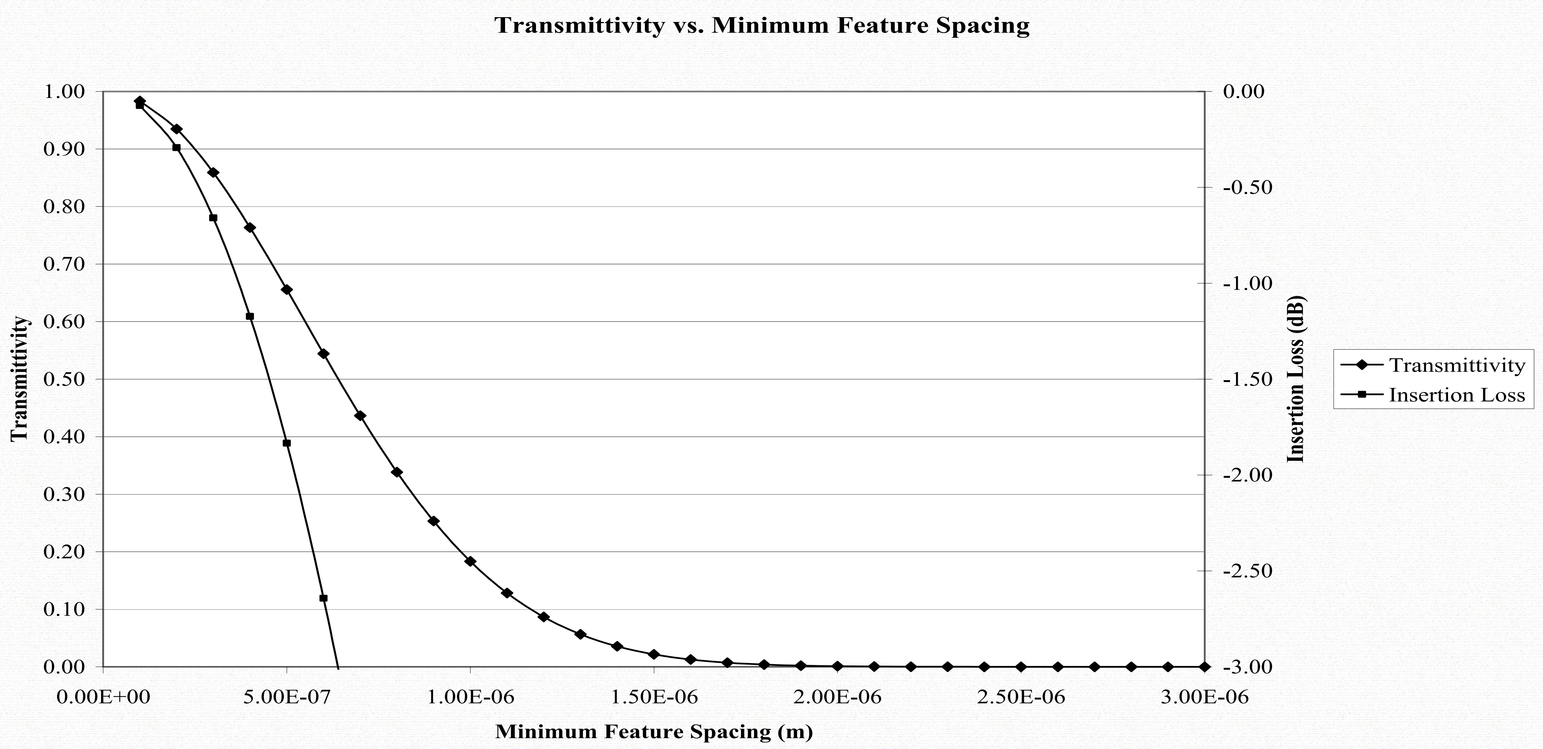
Required Minimum Feature Spacing for Commercial Viability of Raised Surface Micromachined Optical Systems

A model of the optical system is constructed using extended ray-transfer matrices. This is a mathematical technique I developed to predict coupling efficiency in microfabricated optical systems



Using symbolic computational software, like Maple, the matrices are combined and important parameters of the output beam are extracted.

The amount of optical power that is transferred to the output of the system can be determined using the known beam parameters.



The equations are recast in a form that makes their dependence on the minimum feature spacing of the fabrication process explicit. The output beam's parameters are known functions of the minimum feature spacing.

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