

一种基于SOI的集成光波导耦合系统的设计与制备

作者：李鹏, 张宇光, 王丽, 刘正, 严英占, 全晓刚, 薛晨阳, 闫树斌

单位：中北大学

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摘要：

摘要：本文根据锥形光纤与平面环型微腔耦合原理，使用L-Edit版图设计软件设计并优化了锥形光波导与微腔耦合系统。利用MEMS工艺对SOI圆晶片进行加工而实现了锥形光波导与跑道型以及环型光波导微腔的集成。其中，光波导以及微腔通过ICP刻蚀顶层硅而成，矩形槽通过RIE刻蚀衬底硅而成。光波导两侧的矩形槽可方便光纤接入以及对出射光的探测，从而提高了光波导微腔耦合系统的稳定性。

关键词：锥形光波导；耦合；ICP；RIE；跑道型微腔；环型微腔

Design and fabrication of integrated optical waveguide coupling system based on SOI

Author's Name:

Institution:

Abstract:

Abstract: Taper optical waveguide and microcavity coupling system based on the taper-fiber and planar microring cavity coupling theory was designed and optimized by Edit layout software. And integrated taper-waveguide and the runway and ring-type optical waveguide microcavity coupling systems were processed by MEMS technol on SOI wafer. Among them, the waveguide and the microcavity formed by ICP etching the device layer silicon and rectangular grooves formed by RIE etching the silicon substrate. Rectangular grooves on both sides of the waveguide that easy fiber access and detection of emitted light, thereby enhancing the stability of optical waveguid microcavity coupling system.

Keywords: taper-waveguide; coupling; ICP; RIE; runway microcavity; microring cavity;

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