

PICOMETER SCALE BANDWIDTH OPTICAL BANDPASS FILTERING IN PRISM PAIR COUPLED PLANAR OPTICAL WAVEGUIDE

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In the field of narrow bandwidth optical filter, sub wavelength waveguide grating (WG) structure has been a major topic and been extensively studied in the past two decades. The complicatedness of the process in making such kind of grating limits its practical performances and applications. Alternatively, prism pair coupled planar optical waveguide (POW) structure, or in terms of the so called frustrated total internal reflection (FTIR), has also been investigated in the past years. Recently, we have theoretically demonstrated that single and multiple optical bandpass filtering in sub-nanometer to picometer scale can be achieved even with only 3-layered POW sandwiched in cladding prism pair. This could facilitate the simplification of device fabrication. In this talk, properties of this kind of narrow bandwidth optical filter, including tolerance to parameter mismatches, polarization independency, tunability, and its sensing application, etc. are addressed.

Biography

Jianhua Liu got his PhD in 1995 from Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Science. Later, he joined Fudan University. His interested fields of research include laser spectroscopies, experimental studies on short laser pulse interaction with thin film materials, liquid crystal optics, and optical properties of optical planar waveguides.

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