PA1B-04
Prism-Coupled Optical Micro-Resonators

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In the 21st century, telecommunication network has evolved into a new band world. Either the bandwidth or the transmission rates are increased rapidly. In optics, Dense wavelength division multiplexing (DWDM) is a fiber-optic transmission technique that employs light wavelengths to transmit data parallel-by-bit or serial-by-character. The basis of DWDM is to multiplex various channels into a single mode fiber (SMF) and then de-multiplex it at the received end. The optical resonator have high Q(quality) that it can isolate more different channel in order that the it can transmission more channel with using the same fiber. There are several techniques to investigate the optical resonance properties. In HKUST, we investigate a new technique that uses a prism-coupled hexagonal micro-pillar resonator filter.

**Aim and Objective**

The aim of this project was to investigate novel optical characteristics of micrometer-size optical resonators. Laser light will be launched into the optical micro-resonator by use of a glass prism. The coupled optical resonances can give rise to narrowband filter response that can be important for wavelength-division multiplexing (WDM) communications.
Experiment Setup

Setup of Hexagonal Micro-pillar Resonator Based Filter

Setup of Mach-Zehnder Interferometer using circular fiber

Figure captions: Thin Glass
Result

Fano resonances in a hexagonal silica micropillar resonator using angle-resolved technique

Different Lineshape of Mach-Zehnder Interferometer with circular fiber resonator