

Versatile fiber-coupled system design for simultaneous Photon Correlation Spectroscopy (PCS) and Fabry-Perot Interferometry^{*}

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A new experimental setup is proposed utilizing optical fiber coupling of signals from light scattering experiments into existing Photon Correlation Spectroscopy (PCS) system and Fabry-Perot Interferometer. The proposed arrangement is extremely versatile and allows measurements over broad range of scattering angles and temperatures along with considerably faster and easier alignment of the optical components. A major advantage is the possibility of taking simultaneous measurements with both techniques. We compare characteristics such as spectral resolution, contrast, signal-to-noise, light collection efficiency, etc. to conventional systems where fiber coupling is not employed. The effects of using multimode fibers are investigated in details. Variety of practical issues and limitations are discussed.

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