# Selective mode excitation techniques for mode-division multiplexing: A critical review

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**ABSTRACT**
Multimode Fiber (MMF) is an established choice for the high-speed backbones in Local Area Networks (LANs). Mode Division Multiplexing (MDM) is an emerging technology utilizing modes as independent data communication channels. MDM controls the delay spread of propagating modes in order to alleviate modal dispersion, which is the principal source of bandwidth limitation in MMF. This paper critically reviews and systematically classifies recent selective mode excitation techniques for mode division multiplexing. The analysis shows that MDM is a viable solution to increase a channel capacity through the combination and separation of the modes at the multiplexer and de-multiplexer.

**KEYWORDS:**
Mode excitation techniques; Mode-division multiplexing; Multimode Fiber (MMF); Local Area Networks (LANs).