TDM devices and their applications

Hercules Avramopoulos
National Technical University of Athens, 21 Artemidos Str., Athens, 14562, Greece
hav@cc.ece.ntua.gr

Abstract: To say that photonics is undergoing a revolution is both platitude and understatement. It is significant however to note, that demands for lightwave networks with ever increasing performance envelope continue undiminished. To obtain a capacity jump from systems that are being deployed now with tens or hundreds of wavelengths per fiber, without unduly increasing the line card count, cost and complexity, channel rates will have to be increased to 40 Gbps and possibly far beyond. Luckily optical TDM technology has demonstrated very impressive results both at the device level, system performance in transmissions and overall maturation towards field use. For such higher capacity networks to benefit fully from the advantages of ultra high speed TDM technology, information will have to be kept in the optical domain so that some, low level signal processing at the line rate will be necessary. This tutorial will review development and performance of key TDM devices in the background of their use in transmission, routing and optical packet switching and signal processing. It will include high data rate laser sources, optical regenerators, optical gates and regenerative memories.

©2000 Optical Society of America