



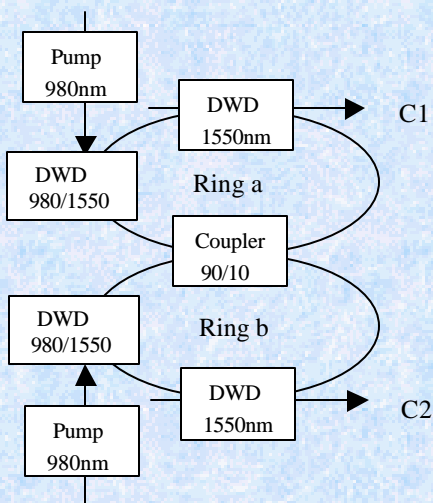
## Erbium-Doped Dual-Ring Fiber Chaotic Laser

### Innovative features

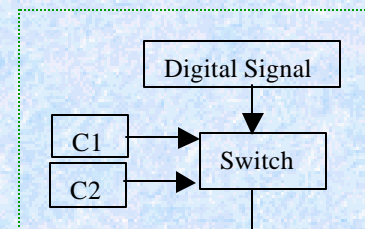
Chaotic signal is a kind of noise-like deterministic signals, which depends on initial conditions and design parameter values. There are several restrictions to use chaotic signal for a practical secure communication system. Two signals from the same chaotic systems with slightly different initial conditions may diverge with time and may become uncorrelated. In a communication system, this property makes the synchronization very difficult at the receiver end.

**Encoding and decoding of message by chaotic switching** have not been reported in the experiment using Erbium-doped fiber laser.

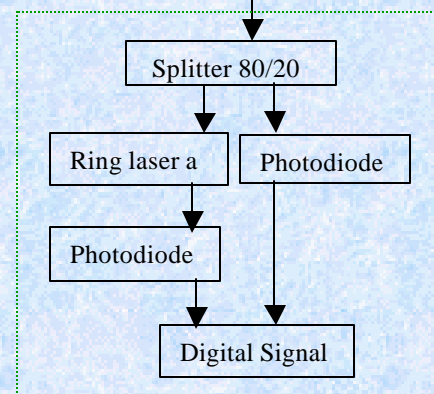
**Erbium-doped dual-ring fiber chaotic laser (EDDRFCL)** offers better chaotic synchronization between identical rings. Its dynamics and synchronization performance have been studied.



### Transmitter



### Receiver



### Competitive advantage

**Chaos Synchronization:** Synchronization between the two chaotic systems is an important issue of chaotic communications. EDDRFCL shows better chaotic synchronization between identical rings

**Secure Communication:** Encode and decode information by chaotic signals. Chaotic switching is more secure than chaotic masking by adding signal.

**Compact:** Dual-ring provides two chaotic laser output. It reduces the cost and difficulties.

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