

# **Analisa Unjuk Kerja Metode Side Coupled Integrated Spaced Sequence Of Resonator (SCISSOR) pada WDM Optical Buffer**

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## **ABSTRAK**

Sistem telekomunikasi yang berkembang pesat menyebabkan diperlukannya suatu jaringan terpadu yang handal. Peningkatan kehandalan dapat dilakukan dengan mengurangi probabilitas terjadinya paket *loss* akibat *contention*, dimana lebih dari satu paket berusaha mendapatkan *port* keluaran yang sama secara bersamaan. Salah satu metode yang diterapkan untuk mengatasi masalah tersebut adalah dengan menerapkan suatu model *buffering* pada jaringan yang disebut dengan *Fiber Delay Line* (FDL).

Salah satu metode untuk menerapkan FDL adalah dengan metode *Side Coupled Integrated Spaced Sequence of Resonator* (SCISSOR). Pada SCISSOR, cahaya membutuhkan waktu lebih lama saat bersirkulasi pada setiap resonator daripada waktu yang dibutuhkan untuk berpropagasi diantara resonator. Konsep inilah yang dijadikan pedoman dalam membuat *Fiber Delay Line*.

Melalui simulasi SCISSOR kedatangan paket dapat ditunda dengan mengubah nilai-nilai dari jari-jari, indeks bias, koefisien pantul, maupun jumlah dari mikroring resonator. Nilai dari setiap variabel diatas diatur untuk mendapatkan *delay* yang paling optimal agar memperoleh *Packet Loss Probability* yang kecil.

*Kata kunci : resonator, SCISSOR, fiber delay line, fiber optik*

# **Performance Analysis of WDM Optical Buffer Using Side Coupled Integrated Spaced Sequence Of Resonator (SCISSOR) Method**

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## **ABSTRACT**

To overcome the rapidly growing telecommunication system, a great performance of integrated network is a must. The increased performance can be done if packet loss probability because of contention is being pushed to the lowest value. Contention occurs when more than one packet tried to find same output port at the same time. Buffering model is use to solve this problem. Buffering in a fiber optic can be applied by Fiber Delay Line (FDL) that can manage the packet arrival schedule by giving delay to the packet that passes it.

One method to apply FDL is also known as Side Coupled Integrated Spaced Sequence of Resonator (SCISSOR), light need more time to circulate through every resonator than to propagate between resonators. This concept becomes a reliable guidance to build a Fiber Delay Line.

Through SCISSOR simulation, the arrival of the packet can be delayed by determine the value of radius, bias index, reflection index, and the order of microring resonator. Each value can be set up to achieve optimal delay and a minimum Packet Loss Probability.

*Keyword : resonator, SCISSOR, fiber delay line, optical fiber*

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# **LAMPIRAN A**

## **TABEL PERCOBAAN**

# **LAMPIRAN B**

## **SOURCE PROGRAM**

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