



**Aquitaine –Karnataka collaboration
Scientific Project for Pre-PhD student exchange
Scientific Proposal**

Project Title	Design and Analysis of Integrated Optic Microring Resonator based Multiplexer/ Demultiplexer for Wavelength Division Multiplexing Applications	
Scientific domain	Networks and Telecommunications / Optical Networks	
Summary (ca. 10 lines)	Wavelength Division Multiplexing (WDM) is the basic technology of optical networking dealing with simultaneous transmission of several independent optical channels over fiber optic network. We propose an array of integrated optic microring resonators for WDM applications. The aim of this project is to analyze fabrication tolerances and related issues to optimise the array dimensions. Integrated Optic (IO) ring geometry promises compact mux / demux array compared to conventional bulk optic devices. Fabrication of IO devices on Silicon- On- Insulator (SOI) platform follows the conventional VLSI CMOS technology fabricat protocols. This project includes mathematical modeling and simulation of the architecture on software platforms.	
Student profile wished	Photonics/ Electrical /Electronics/ Telecommunication/ Physics	
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Timing & duration for project (give approximate ranges)	4 to 6 months	
Representative References	[1] U Raghunath, S Malathi, Y Krishna, T Srinivas, G Kadambi, “ Design of 16 Channel Multiplexer Using SOI Ring Resonator Array”, IEEE Photonic Global Conference, 2010	

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