

Biography

Sisir Kumar Garai was born in 1971 in West Bengal, India. He received the M. Sc. degree in Physics in 1994 and the M. Tech degree in Microwaves in 1998, and was awarded the Ph. D degree in Science (Physics) on 6th February, 2012 from 'The University of Burdwan', West Bengal, India. His field of research interest includes Optoelectronics, Optical Computation and Communication, etc., and he has contributed more than forty five papers in different National and International Journals in his area of research. He has received the best paper presentation award in '16th West Bengal State Science and Technology Congress-2009' and his name is also included in Marquis Who's Who-2010 & 2011, and in International Biography Centre (IBC)-Cambridge-2011. Dr Garai is also the Reviewer of different international journals and Editor of the books "*Selected Topics on Optical Amplifiers in Present Scenario*", ISBN 978-953-51-0391-2, InTech, March 3, 2012, and '*Some Advanced Functionalities of Optical Amplifiers*', ISBN 978-953-51-2237-1, Publisher: InTech, (Croatia). Dr Garai is also the author of the book '*Fundamentals of Frequency Encoded Optical Logic Processors*', P'ublisher: LAP LAMBERT Academic Publishing, Germany, ISBN: 978-3-659-76143-0. He is presently working as an Associate Professor of Physics of M.U.C. Women's College, Burdwan and Research Guide in the field of optical computing and optical communication.

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C. RESEARCH EXPERIENCE

List of publications

Author: Sisir Kumar Garai

1. **S.K.Garai**, D.Samanta, S.Mukhopadhyay, 'All-optical implementation of inversion logic operation by second harmonic generation and wave mixing character of some nonlinear material', Optics and Optoelectronic Technology, China,6(4),43-46(2008)
2. **S.K.Garai**, S. Mukhopadhyay, 'Analytical approach of developing the expression of output of all-optical frequency encoded different logical units and a way-out to implement the logic gates', Optical Fiber Technology, 16(4),250-256, (2010), **ISSN 1068-5200**
3. **S.K.Garai**, P.Ghosh, S. Mukhopadhyay, 'Analytical approach of developing wavelength encoded AND, NAND and X-OR logic operations and implementation of the theory using Semiconductor optical amplifiers', Optik, 122(7), 569-576 (2011) **Published/Hosted by Elsevier Science. ISSN: 0030-4026.**
4. **S.K.Garai**, S. Mukhopadhyay, 'A method of optical implementation of frequency encoded different logic operations using second harmonic & difference frequency generation techniques in non-linear material', Optik, 121(8),715-721, (2010) **Published/Hosted by Elsevier Science. ISSN: 0030-4026.**
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6. **S. K.Garai**, S. Mukhopadhyay, 'Method of all-optical frequency encoded binary adder system using nonlinear waveguide and Reflecting Semiconductor Optical Amplifiers', Optik, 121(20),1859-1862(2010) **Published/Hosted by Elsevier Science. ISSN: 0030-4026..**
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8. **S.K.Garai**, S.Mukhopadhyay, 'Method of implementation of all-optical frequency encoded logic operations exploiting the propagation characters of light through

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12. **S.K.Garai**, S.Mukhopadhyay, 'A novel method of developing all-optical frequency encoded memory unit exploiting nonlinear switching character of Semiconductor Optical Amplifier', Optics and Laser Technology, 42(7),1122-1127(2010) **ISSN: 0030-3992**
13. P.Ghosh, **S.K.Garai**, S. Mukhopadhyay , 'Method of developing an all optical wavelength encoded single bit comparator exploiting four wave mixing and wavelength filtering character of nonlinear semiconductor optical amplifiers',Optik.121(24),2230-2233(2010), **Published/Hosted by Elsevier Science. ISSN: 0030-4026.**
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20. **S.K.Garai** ' A scheme of developing frequency encoded tristate-optical logic operations using Semiconductor Optical Amplifier', Journal of Modern Optics,57(6),419-428(2010) **ISSN 0950-0340 (Print), 1362-3044 (Online).**

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26. S. K. Garai, ‘A new scheme of developing all-optical 4x4 cross-connect switch for WDM network’, *J. Optics(Springer)*, **ISSN: 0972-8821 (Print) 0974-6900 (Online)**, **Publisher: Springer-Verlag, DOI: 10.1007/s12596-013-0130-4**, Accepted-06.03.2013
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28. S. K. Garai, ‘All-optical method of developing some fundamental and functional quaternary logic gates’, *Optik - International Journal for Light and Electron Optics*, Volume 125, Issue 3, February 2014, Pages 1030-1033
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30. Dhoumendra Mandal, Sumana Mandal, Sisir Kumar Garai, ‘A new approach of developing all-optical two-bit-binary data multiplier’, *Optics & Laser Technology*, Volume 64, December 2014, Pages 292–301

Book Chapter

1. Sisir Kumar Garai, ‘**A Novel Method of Developing Frequency Encoded Different Optical Logic Processors Using Semiconductor Optical Amplifier**’ in the book *"Selected Topics on Optical Amplifiers in Present Scenario"* edited by **Sisir Kumar Garai**, Chapter.3, pp.47-66, **ISBN 978-953-51-0391-2**, InTech, March 3, 2012

Book Editor

1. *"Selected Topics on Optical Amplifiers in Present Scenario"* edited by Sisir Kumar Garai, **ISBN 978-953-51-0391-2**, InTech, March 3, 2012