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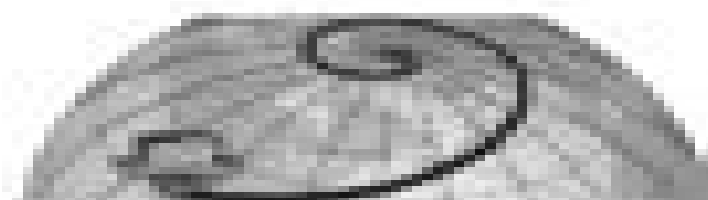
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Monterey, California: Naval Postgraduate School

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Optical Detection Using Four Layer Semiconductor Structures

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Chemical Abstracts ,2002 **Journal of the Optical Society of America** ,1986 Second Order Non-linear Optics of Silicon and Silicon Nanostructures O. A. Aktsipetrov,I. M. Baranova,K. N. Evtyukhov,2018-09-03 The theory and practice of the non linear optics of silicon are inextricably linked with a variety of areas of solid state physics particularly semiconductor physics However the current literature linking these fields is scattered across various sources and is lacking in depth Second Order Non linear Optics of Silicon and Silicon Nanostructures describes the physical properties of silicon as they apply to non linear optics while also covering details of the physics of semiconductors The book contains six chapters that focus on The physical properties and linear optics of silicon Basic theoretical concepts of reflected second harmonics RSH The authors theory of the generation of RSH at the non linear medium linear medium interface An analytical review of work on the non linear optics of silicon The results of non linear optical studies of silicon nanostructures A theory of photoinduced electronic processes in semiconductors and their influence on RSH generation The book also includes methodological problems and a significant amount of reference data It not only reflects the current state of research but also provides a single thorough source of introductory information for those who are becoming familiar with non linear optics Second Order Non linear Optics of Silicon and Silicon Nanostructures is a valuable contribution to the fields of non linear optics semiconductor physics and microelectronics as well as a useful resource for a wide range of readers from undergraduates to researchers

Canadian Journal of Physics ,1988 *Semiconductors* ,2006 Pulse Mode Light Sensing Using Four-layer

Semiconductor Structures and Their Application in Neural Networks Ioannis Siganos, 2008 Existing semiconductor photodetectors produce a steady current or voltage output in response to incident light that depends on the intensity of the light beam In contrast biological vision systems produce a stream of pulses with pulse rate representing the amount of incident light power The goal of this thesis is to explore the use of a four layer PNPN semiconductor structure as an optical detector that produces pulses instead of steady current or voltage output The first task of this thesis is to show that the pulse interval distribution is dependent on the intensity of the incident light beam and that the distribution of pulse intervals is described by a renewal process statistical model The second task of this thesis is to use the unique characteristics of the pulse generating circuit along with a neural network to construct a 2D sensor array capable of recognizing visual patterns and thus modeling to some extent the human visual cortex *International aerospace abstracts* ,1993 **Metals Abstracts** ,1979 Physics Briefs ,1992 **Optical Engineering** ,1992 Publishes papers reporting on research and development in optical science and engineering and the practical applications of known optical science engineering and technology Optics Index ,1990 *Summaries of Papers Presented at the Conference on Lasers and Electro-optics* ,1997 **Journal of the Institution of Electronics and Telecommunication Engineers** ,1992 *Electrical & Electronics Abstracts* ,1997 *Catalog of Government Patents* ,1981

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