

## Device Applications Of Silicon Nanocrystals And Nanostructures Nanostructure Science And Technology

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Nobuyoshi Koshida, "Device Applications of Silicon Nanocrystals and Nanostructures " English | ISBN: 0387786880 | 2009 | 344 pages | EPUB, PDF | 28 MB + 38 MB

**Silicon nanocrystals-based electroluminescent resistive ...**  
We demonstrate hybrid inorganic-organic light-emitting devices with peak electroluminescence (EL) at a wavelength of 868 nm using silicon nanocrystals (SiNCs). An external quantum efficiency of 0.6% is realized in the forward-emitted direction, with emission originating primarily from the SiNCs. Microscopic characterization indicates that complete coverage of the SiNCs on the conjugated ...

**Device Applications Of Silicon Nanocrystals And ...**  
Silicon nanocrystals (SiNCs) featuring size-dependent novel optical and electrical properties have been widely employed for various functional devices. We have demonstrated SiNC-based hybrid photovoltaics (SiNC-HPVs) and proposed several approaches for performance promotion. Recently, owing to the superiorities suc

**Device Applications of Silicon Nanocrystals and ...**  
Recent developments in the technology of silicon nanocrystals and silicon nanostructures, where quantum-size effects are important, are systematically described including examples of device applications. Due to the strong quantum confinement effect, the material properties are freed from the usual

**Device Applications of Silicon Nanocrystals and ...**  
1. Introduction. Silicon (Si) is well known as the material of choice for microelectronics [].Although Si has found important applications in optoelectronics such as photodetection and photovoltaic electricity generation [ , ], Si is not generally regarded as an excellent optoelectronic material mainly due to its mediocre optical absorption and rather poor optical emission [].

**Bright Silicon Nanocrystals from a Liquid Precursor: Quasi ...**  
bulk structures.1–6 Among them, silicon nanocrystals (SiNCs) have attracted much attention as nontoxic and abundant semiconducting materials. The application of SiNCs has also been studied in numerous devices,7–10 and SiNCs allow expansion of the exhibity of device design and provide optimum perfor-mance.

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**Device Applications of Silicon Nanocrystals and ...**  
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**Silicon Nanocrystals: Fundamentals, Synthesis and Applications**  
The application of Si nanocrystals as floating gate in the MOSFET-based memory brings many advantages due to separated charge storage. In this work, Si nanocrystal memory with nanocrystals synthesized by ion implantation was characterized to provide better understanding of the relationship between device structure and performance—especially charge retention characteristics.

**Nanomaterials | Special Issue : Silicon Nanocrystals: From ...**  
Herein, we show that not only EL emission can be achieved in a controlled way from this MIS device system but also Si NCs provide a characteristic EL signal that allows distinguishing the resistance state of the device, desirable for optical resistance switching applications.

**Silicon nanocrystal charging dynamics and memory device ...**  
The application of Si nanocrystals as floating gate in the metal oxide semiconductor field-effect transistor (MOSFET) based memory, which brings many advantages due to separated charge storage, attracted much attention in recent years. In this work, Si nanocrystal memory with nanocrystals synthesized by ion implantation was characterized

**Silicon nanocrystal hybrid photovoltaic devices for indoor ...**  
This Special Issue on "Silicon Nanocrystals: From Fundamentals to Applications" aims to cover a broad range of subjects, from Si NC synthesis, to surface engineering, and to the design and characterization of devices.

**Silicon nanocrystal hybrid photovoltaic devices for indoor ...**  
Silicon nanocrystals (SiNCs) with bright bandgap photoluminescence (PL) are of current interest for a range of potential applications, from solar windows to biomedical contrast agents. Here, we use the liquid precursor cyclohexasilane (Si6H12) for the plasma synthesis of colloidal SiNCs with exemplary core emission. Through size separation executed in an oxygen-shielded environment, we achieve ...

**Device Applications Of Silicon Nanocrystals**  
Some novel devices and applications, in fields such as photonics (electroluminescence diode, microcavity, and waveguide), electronics (single-electron device, spin transistor, nonvolatile memory, and ballistic electron emitter), acoustics, and biology, have been developed by the use of these quantum-induced functions in ways different from the conventional scaling principle for ULSI.

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Download Free Device Applications Of Silicon Nanocrystals And Nanostructures Nanostructure Science And Technologymerged as one of the preferred ways to control quantum phenomena at the nanoscale. This control leads to spectacular properties and to a wide field of applications ranging from memory

**Device Applications of Silicon Nanocrystals and ...**  
Recent developments in the technology of silicon nanocrystals and silicon nanostructures, where quantum-size effects are important, are systematically described including examples of device applications. Due to the strong quantum confinement effect, the material properties are freed from the usual indirect- or direct-bandgap regime, ...

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**Hybrid Silicon Nanocrystal?Organic Light-Emitting Devices ...**  
This clearly structured reference introduces readers to optical, electrical and thermal properties of silicon nanocrystals that arise from their greatly reduced dimensions. . . a major part of the text is devoted to applications in microelectronics as well as photonics and nanobiotechnology, making this of great interest to the high-tech industry."

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