

# Journal of Semiconductors

Volume 36 Number 1 January 2015

## SEMICONDUCTOR PHYSICS

- 012001** An analytic model to describe the relationship between conductance and frequency of heterojunction (5 pages)  
Liu Changshi
- 012002** Thermionic emission theory and diffusion theory applied to CdTe PV devices (5 pages)  
Zhang Rumin, Ruan Yu, Li Zhengyi, Cheng Sichong, and Liu Dijun
- 012003** First-principles study on electronic structure and conductivity of Sn-doped  $\text{Ga}_{1.375}\text{In}_{0.625}\text{O}_3$  (6 pages)  
Zhao Yinnü, Yan Jinliang, and Xu Chengyang

## SEMICONDUCTOR MATERIALS

- 013001** The calculation of band gap energy in zinc oxide films (6 pages)  
Ali Arif, Okba Belahssen, Salim Gareh, and Said Benramache
- 013002** Structural, optical and electrical properties of zinc oxide thin films deposited by a spray pyrolysis technique (5 pages)  
Yacine Aoun, Boubaker Benhaoua, Brahim Gasmi, and Said Benramache
- 013003** Effect of defects on the electronic properties of  $\text{WS}_2$  armchair nanoribbon (4 pages)  
Bahniman Ghosh and Aayush Gupta
- 013004** Preparation and thermal-sensitive characteristic of copper doped n-type silicon material (4 pages)  
Fan Yanwei, Zhou Bukang, Wang Junhua, Chen Zhaoyang, and Chang Aimin
- 013005** Redistribution of carbon atoms in Pt substrate for high quality monolayer graphene synthesis (6 pages)  
Li Yinying, Wu Xiaoming, Wu Huaqiang, and Qian He
- 013006** Influence of N-type doping on the oxidation rate in n-type 6H-SiC (5 pages)  
Guo Hui, Zhao Yaqiu, Zhang Yuming, and Ling Xianbao

## SEMICONDUCTOR DEVICES

- 014001** Numerical simulation of the effect of gold doping on the resistance to neutron irradiation of silicon diodes (5 pages)  
K. Bekhouche, N. Sengouga, and B. K. Jones
- 014002** Computer modelling and analysis of the photodegradation effect in a-Si:H p-i-n solar cell (8 pages)  
A.F. Bouhdjar, L. Ayat, AM. Meftah, N. Sengouga, and AF. Meftah
- 014003** Performance analysis of InSb based QWFET for ultra high speed applications (4 pages)  
T. D. Subash, T. Gnanasekaran, and C. Divya
- 014004** An improved analytical model of 4H-SiC MESFET incorporating bulk and interface trapping effects (12 pages)  
M. Hema Lata Rao and N. V. L. Narasimha Murty
- 014005** Insights into channel potentials and electron quasi-Fermi potentials for DG tunnel FETs (6 pages)  
Menka, Anand Bulusu, and S. Dasgupta

(Continued on inside back cover)

- 014006 Effect of phosphorus ion implantation on back gate effect of partially depleted SOI NMOS under total dose radiation (4 pages)**  
Li Leilei, Zhou Xinjie, Yu Zongguang, and Feng Qing
- 014007 Characterization of positive bias temperature instability of NMOSFET with high-*k*/metal gate last process (4 pages)**  
Ren Shangqing, Yang Hong, Tang Bo, Xu Hao, Luo Weichun, Tang Zhaoyun, Xu Yefeng, Xu Jing, Wang Dahai, Li Junfeng, Yan Jiang, Zhao Chao, Chen Dapeng, Ye Tianchun, and Wang Wenwu
- 014008 GaN HEMT with AlGaIn back barrier for high power MMIC switch application (5 pages)**  
Ren Chunjiang, Shen Hongchang, Li Zhonghui, Chen Tangsheng, Zhang Bin, and Gao Tao
- 014009 An improved trench gate super-junction IGBT with double emitter (6 pages)**  
Dai Weinan, Zhu Jing, Sun Weifeng, Du Yicheng, and Huang Keqin
- 014010 Performance enhancement of c-CESL-strained 95-nm-gate NMOSFET using trench-based structure (4 pages)**  
Zhao Di, Luo Qian, Wang Xiangzhan, Yu Qi, Cui Wei, and Tan Kaizhou
- 014011 Voltage reduction of 808 nm GaAsP/(Al)GaInP laser diodes with GaInAsP intermediate layer (3 pages)**  
Zhu Zhen, Zhang Xin, Li Peixu, Wang Gang, and Xu Xiangang
- 014012 A novel lateral cavity surface emitting laser with top sub-wavelength grating (5 pages)**  
Qi Aiyi, Wang Yufei, Guo Xiaojie, and Zheng Wanhua
- 014013 All-optical NRZ wavelength conversion using a Sagnac loop with optimized SOA characteristics (7 pages)**  
Jiang Xiyan, Wang Jin, Gao Chen, Xu Ji, and Wan Hongdan
- 014014 A novel SOI pressure sensor for high temperature application (5 pages)**  
Li Sainan, Liang Ting, Wang Wei, Hong Yingping, Zheng Tingli, and Xiong Jijun

#### SEMICONDUCTOR INTEGRATED CIRCUITS

- 015001 A 0.8–4.2 GHz monolithic all-digital PLL based frequency synthesizer for wireless communications (15 pages)**  
Zhao Yuanxin, Gao Yuanpei, Li Wei, Li Ning, and Ren Junyan
- 015002 A 9–12 GHz 5-bit active LO phase shifter with a new vector sum method (10 pages)**  
Chen Changming, Li Wei, Li Ning, and Ren Junyan
- 015003 A 3 Gb/s multichannel transceiver in 65 nm CMOS technology (8 pages)**  
Zhang Feng and Qiu Yusong
- 015004 High accuracy digital aging monitor based on PLL-VCO circuit (5 pages)**  
Zhang Yuejun, Jiang Zhidi, Wang Pengjun, and Zhang Xuelong

#### SEMICONDUCTOR TECHNOLOGY

- 016001 Effect of H<sub>2</sub>O<sub>2</sub> and nonionic surfactant in alkaline copper slurry (5 pages)**  
Yuan Haobo, Liu Yuling, Jiang Mengting, Chen Guodong, Liu Weijuan, and Wang Shengli
- 016002 Next generation barrier CMP slurry with novel weakly alkaline chelating agent (5 pages)**  
Fan Shiyan, Liu Yuling, Sun Ming, Tang Jiying, Yan Chenqi, Li Hailong, and Wang Shengli