＊ 賴朝松教授

所有發表期刊論文

Publication List

A. Journal Papers:

1. Y.H. Lin, Chao Sung Lai, C.L. Lee, T.F. Lei and T.S. Chao, 1995 ”Nitridization of the Stacked Poly-Si Gate to Suppress the Boron Penetration in pMOS,” IEEE Electron Devices Lett., vol.15,P.248-249. (SCI)

2. Chao Sung Lai, T.F. Lei and C.L. Lee, 1995 ”The electrical characteristics of polysilicon oxide grown in pure N2O,”IEEE Electron Devices Lett., vol.16, P.385-386. (SCI)

3. Chao Sung Lai, T.F. Lei, C.L. Lee and T.S. Chao, 1995 ”Post-polysilicon gate-process-induced degradation on thin gate oxide,” IEEE Electron Devices Lett., vol.16, P.470-472. (SCI)

4. Chao Sung Lai, T.F. Lei and C.L. Lee, 1996 ”The characteristics of polysilicon oxide grown in pure N2O,” IEEE Trans. on Electron Devices, vol.43, No.2, 326-331. (SCI)

5. Chao Sung Lai, C.L. Lee, T.F. Lei and H.N. Chern, 1996 ”A novel vertical bottom-gate polysilicon thin film transistor with self-aligned offset,” IEEE Electron Device Letters, EDL-17,No.5. (SCI)

6. Y.H. Lin, Chao Sung Lai, C.L. Lee, T.F. Lei and T.S. Chao, 1996 ”Nitridization of the Stacked Poly-Si Gate to Suppress the Boron Penetration in pMOS,” IEEE Trans. on Electron Devices,vol.43, No.7, p.1161-1165. (SCI)

7. T.F. Lei, J.Y. Cheng, S.Y. Shiau, T.S. Chao and Chao Sung Lai, 1997 ”The polysilicon oxide grown on chemical-mechanical-polished (CMP) polysilicon,” IEEE Electron Devices Lett, vol.18, no. 6, p. 270-271. (SCI)

8. C. H. Kao, Chao Sung Lai and C. L. Lee, 1997, “The TEOS CVD Oxide Deposited on Phosphorus In-Situ Doped Polysilicon with Rapid Thermal Annealing”, IEEE Electron Devices Lett., vol. 44,no. 11, p. 526-528. (SCI)

9. T.F. Lei, J.Y. Cheng, S.Y. Shiau, T.S. Chao and Chao Sung Lai, 1998 ”Characterization of Polysilicon Oxides Thermally Grown and Deposited on the polished Polysilicon Films,” IEEE Transaction on Electron Devices, vol. 45, no. 4, p. 912-917. (SCI)

10. C. H. Kao, Chao Sung Lai and C. L. Lee, 1998, “The TEOS Oxide Deposited on Phosphorus in-situ/POCl3 Doped Polysilicon with Rapid Thermal Annealing in N2O”, IEEE Transaction on Electron Devices , vol. 45, no. 9, p. 1927-1933. (SCI)

11. Chao Sung Lai, T.S. Chao, T.F. Lei, C.L. Lee, T.Y. Huang and C.Y. Chang, 1998 ”Improvements of Reliability of Metal-Oxide Semiconductor Field-Effect Transistors with N2O Nitrided Gate Oxide and N2O Polysilicon Gate Reoxidation,” Jpn. J. Appl. Phys. Part1. Vol. 37,no. 10. pp. 37-39. (SCI)

12. C. L. Lin, T. S. Chao, Chao Sung Lai, and T. Y. Huang, 2000, “High-Quality native oxide free ultra-thin oxide grown by in itu HF-vapor treatment”, IEE Electronics Letters, 36(11):981-983.(SCI)

13. Jam Wem Lee; Chung-Len Lee; Tan Fu Lei; Chao Sung Lai, April 2001 Page(s): 743 -749 “High reliability polyoxide fabricated by using TEOS oxide deposited on disilane polysilicon film”, Electron Devices, IEEE Transactions on , Volume: 48 Issue: 4 . (SCI)

14. CHIA CHI MA, Chao Sung Lai*, RAY DER CHANG and C. A. HUANG*, 2004, “The Characterization of N2O Nitrided HfO2 Thin Film”, WSEAS TRANSACTIONS on Electronics vol.1, January 2004, p.77-p.80.

15. Chao Sung Lai*, Sheng Yao Yang, Ching Nan Hsiao, Kung Ming Fan and and C. A. HUANG*, 2004, “The Threshold Voltage Adjustment of Molybdenum Stack Gate by Nitrogen-Controlled Sputtering” WSEAS TRANSACTIONS on Electronics vol.1, January 2004, p.81-p.85.

16. Chao Sung Lai*, C. M. Yang, H. P. Ko, “A novel approach for the drift mechanisms of EGFET by post baking treatment”, 2004, Chemical sensors, vol. 20, B, 840-841.

17. Chao Sung Lai*, W. C. Wu, K. M. Fan, and T. S. Chao , “Effects of Post CF4 Plasma Treatment on the HfO2 Thin Film”, Jpn. J. Appl. Phys. Part1, 2005, Vol. 44, No. 4B, 2307-2310.

18. Chao Sung Lai* and K. M. Fan, “Reoxidation after NH3 Plasma Nitridation for Multiple-Thickness Oxynitrides ”, Jpn. J. Appl. Phys. Part1, 2005, Vol. 44, No. 8, 2005, pp.5964-5969 (SCI)

19. Chao Sung Lai*, Woei Cherng Wu, Jer Chyi Wang, and Tien Sheng Chao, “Characterization of CF4-plasma fluorinated HfO2 gate dielectrics with TaN metal gate” 2005, APPLIED PHYSICS LETTERS 86, 222905(SCI)

20. Shian-Jyh Lin, Chao-Sung Lai*, Shian-Hau Liao, Chung-Yuan Lee, Pei-Ing Lee, Shi-Ming Chiang, and Muh-Wang Liang, “A Novel Trench Capacitor Enhancement Approach by Selective Liquid-Phase Deposition”,November, 2005, IEEE transactions on semiconductor manufacturing, vol. 18,No.4, 644-648.

21. Minchen Chang, Jengping Lin, Chao-Sung Lai, Ruey-Dar Chang, Steven N. Shih, Mao-Ying Wang, and Pei-Ing Lee “Si–H Bond Breaking Induced Retention Degradation During Packaging Process of 256 Mbit DRAMs With Negative Wordline Bias” Electron Devices, IEEE Transactions on , VOL. 52, NO. 4, APRIL 2005, 484-491. (SCI)

22. C. M. Yang, Chao Sung Lai*, C.Y. Wang, C. E. Lue, “The Characterization of Stacked a-Si/SiGe/a-Si sensing Membrane”, 2005, Microelectronic Engineering, 80, 46-49. (SCI)

23. Shan-hui Hsu, Chun-Yu Chen, Po Seng Lu, Chao-Sung Lai, and Chun-Jung Chen, “Oriented Schwann Cell Growth on Microgrooved Surfaces”, 2005 BIOTECHNOLOGY AND BIOENGINEERING, VOL. 92, NO. 5, DECEMBER 5, 2005, 579-588. (SCI)

24. Tung-Ming Pan, Chao-Sung Lai, Hui-Hsin Hsu, Jer-Chyi Wang, Kuan-Di Wang, Chun-Lin Chen and Jian-De Lee, “Excellent frequency dispersion of thin gadolinium oxide high-k gate dielectrics”,2005, APPLIED PHYSICS LETTERS,87, 262908 (SCI)

25. Chyuan Haur Kao, Chao Sung Lai*, and Chung Len Lee, “Oxide Grown on Polycrystal Silicon by Rapid Thermal Oxidation in N2O”, 2006, Journal of Electrochemical Society vol. 153, no. 2. G128-G133.(SCI)

26. Chao-Sung Lai*, Chia-Ming Yang, and Tseng-Fu Lu, “pH Sensitivity Improvement on 8nm Thick Hafnium Oxide by Post Deposition Annealing”, 2006, Electrochemical and Solid-State Letters, 9(3), G90-92.

27. Chao Sung Lai*, Woei Cherng Wu, Jer Chyi Wang and Tian Sheng Chao, “Characteristics of Fluorine Implantation for HfO2 Gate Dielectrics with High Temperature Post-Deposition Annealing”, Jpn. J. Appl. Phys. Part1, 2006, Vol. 45, No. 4B, pp. 2893-2897. (SCI)

28. Chao-Sung Lai*, Chia-Ming Yang, and Tseng-Fu Lu, “Thickness Effects on pH Response of HfO2 Sensing Dielectric Improved by Rapid Thermal Annealing ”, Jpn. J. Appl. Phys. Part1, 2006, Vol. 45, No. 4B, pp. 3807-3810. (SCI)

29. Liann-Be Chang, Hong-Hsi Ko, Yu-Lin Lee, Chao-Sung Lai, and Chih-YaoWang “The Electrical and pH-Sensitive Characteristics of Thermal Gd2O3 / SiO2

Stacked Oxide Capacitors", 2006,Journal of Electrochemical Society, 153 (4), G330-G332. (SCI)

30. Chung Steve S. ; Yeh C. H. ; Feng H. J. ; Lai C. S. ; Yang J.-J. ; Chen C. C. ; Jin Y. ; Chen S. C. ; Liang M. S. ; "The Impact of STI on the Reliability of a Narrow Width p-MOSFETs with Advanced ALD N/O Gate Stack", 2006, IEEE Transactions on Device and Materials Reliability, VOL. 6, No.1, 95-101.(SCI)

31. Chao-Sung Lai*, Shing-Kan Peng, Tung-Ming Pan, Jer-Chyi Wang, Kung-Ming Fan, "Work Function Adjustment by Nitrogen Incorporation in HfNx Gate Electrode with Post Metal Annealing", 2006, Electrochemical and Solid-State Letters, 9 (7), G239-G241. (SCI)

32. Chao Sung Lai, Woei Cherng Wu, Tien Sheng Chao, Jian Hao Chen, Jer-Chyi Wang, Li Lin Tay, and Nelson Rowell, "Suppression of Interfacial Reaction for HfO2 on Silicon by Pre-CF4 Plasma Treatment" 2006, APPLIED PHYSICS LETTERS, 89, 072904 (SCI)

33. Chyuan Haur Kao, Chao Sung Lai*, and Chung Len Lee, "Polarity Asymmetry of Polyoxide Grown on Phosphorus In Situ Doped Polysilicon",2006, Journal of Electrochemical Society, vol.153, no. 9, G860-865 (2006).

34. Chao Sung Lai*, Yang, Chia-Ming, Wang, Chih-Yao, Wang, Ti-Chuan, and Pijanowska, Dorota G. "Chemical sensing properties of electrolyte/SiGe/SiO2/Si structure" 2006, Japanese Journal of Applied Physics, Part 1, v 45, n 8 A, Aug 4, p 6192-6195

35. Chyuan Haur Kao, Chao Sung Lai*, and Chung Len Lee, "Electrical and Reliability Improvement in Polyoxide by Fluorine Implantation", 2007, Journal of Electrochemical Society, 154, H259. (SCI)

36. Chao Sung Lai*, Kung Ming Fan, Hsing Kan Peng, Shian Jyh Lin, Chung Yuan Lee, and Chi Fong Ai "Fluorine effects on the dipole structures of the Al2O3 thin films and characterization by spectroscopic ellipsometry", 2007, APPLIED PHYSICS LETTERS, 90, 172904 (SCI)

37. Liann-Be Chang, Hong-Hsi Ko, Ming-Jer Jeng, Yu-Lin Lee, and Chao-Sung Lai, "pH-Sensitive Gd2O3/SiO2 Stacked Capacitors Prepared By Pure Water Anodic Oxidation", 2007, J. Electrochem. Soc. 154, J150. (SCI)

38. Woei Cherng Wu, Chao Sung Lai*, Jer Chyi Wang, Jian Hao Chen, Ming Wen Ma, and Tien Sheng Chao, "High-Performance HfO2 Gate Dielectrics Fluorinated by Postdeposition CF4 Plasma Treatment", 2007, Journal of Electrochemical Society, 154, H561 (2007) (SCI)

39. Wu, W.-C.; Chao, T.-S.; Peng, W.-C.; Yang, W.-L.; Wang, J.-C.; Chen, J.-H.; Lai, C.-S.; Yang, T.-Y.; Lee, C.-H.; Hsieh, T.-M.; Liou, J. C.; "Highly Reliable Multilevel and 2-bit/cell Operation of Wrapped Select Gate (WSG) SONOS Memory" Electron Device Letters, IEEE,Volume 28, Issue 3, March 2007 Page(s):214 –216. (SCI)

40. Chao Sung Lai, Chyuan Haur Kao, Chung Len Lee, and Tan Fu Lei , "Nitrogen Effects on the Integrity of Silicon Dioxide Grown on Polycrystalline Silicon", Journal of Electrochemical Society 154, H883. (2007) (SCI)

41. Chia-Ming Yang, Chao-Sung Lai, Tseng-Fu Lu, Ti-Chuan Wang, and Dorota G. Pijanowska "Drift and Hysteresis Effects Improved by RTA Treatment on Hafnium Oxide in pH-Sensitive Applications" J. Electrochem. Soc. 155 J326 (2008) (SCI)

42. Kung Ming Fan, Chao Sung Lai, Helena Silva, Chi Fong Ai, and Chih Rong Chen J., "Programming Speed Enhancement by NH3 Plasma Nitridation of Tunneling Oxide for Ge Nanocrystals Memory" Electrochem. Soc. 155 H889 (2008) (SCI)

43. Chyuan Haur Kao, Chao Sung Lai, M. C. Tsai, K. M. Fan, C. H. Lee, and C. S. Huang, "SiGe Nanocrystals Fabricated by One-Step Thermal Oxidation and Rapid Thermal Annealing", Electrochem. Solid-State Lett. 11 K44 (2008) (SCI)

44. Kung Ming Fan, Chao Sung Lai, Hsing Kan Peng, Shian Jyh Lin, and Chung Yuan Lee, “Improvements on Interface Reliability and Capacitance Dispersion of Fluorinated ALD-Al2O3 Gate Dielectrics by CF4 Plasma Treatment" J. Electrochem. Soc. 155 G51 (2008) (SCI)

45. Woei Cherng Wu, Chao Sung Lai, Tzu Ming Wang, Jer Chyi Wang, Chih Wei Hsu, Ming Wen Ma, and Tien Sheng Chao, “Current Transport Mechanism for HfO2 Gate Dielectrics with Fluorine Incorporation", Electrochem. Solid-State Lett. 11 H15 (2008) (SCI)

46. Woei Cherng Wu; Chao-Sung Lai; Tzu-Ming Wang; Jer-Chyi Wang; Chih Wei Hsu; Ming Wen Ma; Wen-Cheng Lo; Tien Sheng Chao;" Carrier Transportation Mechanism of the TaN/HfO2/Si Structure With Silicon Surface Fluorine Implantation", Electron Devices, IEEE Transactions on Volume 55, Issue 7, July 2008 Page(s):1639 - 1646(SCI)

47. Woei-Cherng Wu, Tien-Sheng Chao, Te-Hsin Chiu, Jer-Chyi Wang, Chao-Sung Lai, Ming-Wen Ma, and Wen-Cheng Lo, “Performance and Interface Characterization for Contact Etch Stop Layer–Strained nMOSFET with HfO2

Gate Dielectrics under Pulsed-IV Measurement", Electrochem. Solid-State Lett. 11 H230 (2008).

48. Chao Sung Lai, Hsing Kan Peng, Chin Wei Huang, Kung Ming Fan, Yu Ching Fang, Li Hsu, Hui Chun Wang, Chung Yuan Lee, and Shian Jyh Lin "Characterizations of HfxMoyNz Alloys as Gate Electrodes for n- and p-Channel Metal Oxide Semiconductor Field Effect Transistors" Japanese Journal of Applied Physics 47 (2008) pp. 2442-2445 : (A11,H01) (SCI)

49. C. H. Kao, C. S. Lai "Performance and Reliability Improvements in Thin-Film Transistors with Rapid Thermal N2O Annealing", Semiconductor Science and Technology (2008), 23 No 2 025020.

50. Chyuan Haur Kao, Chao Sung Lai, Chen Sheng Huang and K.M. Fan, "Ge nanocrystal charge trapping devices fabricated by one-step oxidation on poly-SiGe", Applied Surface Science 255 (2008) 2512–2516.

51. Woei-Cherng Wu, Tien-Sheng Chao, Te-Hsin Chiu, Jer-Chyi Wang,Chao-Sung Lai, Ming-Wen Ma, and Wen-Cheng Lo, "Positive Bias Temperature Instability (PBTI) Characteristics of Contact-Etch-Stop-Layer-Induced Local-Tensile-Strained HfO2 nMOSFET" IEEE ELECTRON DEVICE LETTERS (2008).

52. Chao-Sung Lai*, Cheng-En Lue, Chia-Ming Yang, Jui-Hsiu Jao, and Chih-Chiang Tai, "New pH-sensitive TaOxNy membranes prepared by NH3 plasma surface treatment and nitrogen incorporated reactive sputtering" Sensors and Actuators B 130 (2008) 77–81.

53. Chao-Sung Lai*, Cheng-En Lue, Chia-Ming Yang, Marek Dawgul and Dorota G. Pijanowska "Optimization of a PVC Membrane for Reference Field Effect Transistors" Sensors (2009), 9, 2076-2087.

54. Hsing-Kan Peng, Chao-Sung Lai, Kung-Ming Fan, and Shian-Jyh Lin, "Negative Bias Temperature Instability of p-Channel Metal Oxide Semiconductor Field Effect Transistor with Novel HfxMoyNz Metal Gate Electrodes" Japanese Journal of Applied Physics (2009) 48 04C013.

55. Min-HsienWu, Chih-Hung Cheng, Chao-Sung Lai, Tung-Ming Pan "Structural properties and sensing performance of high-k Sm2O3 membrane-based electrolyte–insulator–semiconductor for pH and urea detection" Sensors and Actuators B 138 (2009) 221–227.

56. Jer-Chyi Wang, Chao-Sung Lai, Yu-Kai Chen, Chih-Ting Lin, Chuan-Pu Liu, Michael R. S. Huang, and Yu-Ching Fang "Characteristics of Gadolinium Oxide

Nanocrystal Memory with Optimized Rapid Thermal Annealing" Electrochemical and Solid-State Letters (2009), 12 6 H202-H204.

57. Tung-Ming Pan, Jian-Chi Lin, Min-Hsien Wu, Chao-Sung Lai "Structural properties and sensing performance of high-k Nd2TiO5 thin layer-based electrolyte-insulator-semiconductor for pH detection and urea bio-sensing" Biosensors and Bioelectronics (2009).

58. Pai-Chi Chou, Chao-Sung Lai, Jer-Chyi Wang, Woei-Cherng Wu, Li-Chi Liu, Yu-Ching Fang, Li Hsu, and Hui-Chun Wang, “High-k HfxGdyOz Charge Trapping Layer in Silicon–Oxide–Nitride–Silicon Type Nonvolatile Memory by In situ Radio Frequency Dual-Sputtering Method”, Japanese Journal of Applied Physics 48 (2009)

59. Shian-Jyh Lin, Chao-Sung Lai, Yi-Jung Chen, Sheng-Tsung Chen, Chia Chuan Hsu, Brady Huang, Graham Chuang, Neng-Tai Shih, Chung-Yuan Lee, and Pei-Ing Lee, “Gate-Induced Drain Leakage (GIDL) Improvement for Millisecond Flash Anneal (MFLA) in DRAM Application”, IEEE TRANSACTIONS ON ELECTRON DEVICES, VOL. 56, NO. 8, AUGUST (2009)

60. Tung-Ming Pan, Jian-Chi Lin, Min-HsienWu, Chao-Sung Lai, "Study of high-k Er2O3 thin layers as ISFET sensitive insulator surface for pH detection" Sensors and Actuators B 138619–624 (2009).

61. Chao-Sung Lai*, Tseng-Fu Lu, Chia-Ming Yang, Yen-Chih Lin, Dorota G. Pijanowska, Bohdan Jaroszewicz, “Body effect minimization using single layer structure for pH-ISFET applications”, Sensors and Actuators B: Chemical, Volume 143, Issue 2, 7 January 2010, Pages 494-499 (2010). (SCI)

62. Chao-Sung Lai*, Cheng-En Lue, Chia-Ming Yang, and Dorota G. Pijanowska, “Fluorine Incorporation and Thermal Treatment on Single and Stacked Si3N4 Membranes for ISFET/REFET Application” Journal of The Electrochemical Society, 157 (1) J8-J12 (2010). (SCI)

63. Cheng-En Lue, Chao-Sung Lai*, Jer-Chyi Wang, Ching-Mie Wu, and Chia-Ming Yang, "Differential Light Addressable Potentiometric Sensor with Poly(vinyl chloride) and HfO2 Membranes for pH Sensors", Japanese Journal of Applied Physics 49 (2010) 04DL10. (SCI)

64. Cheng-En Lue, Chao-Sung Lai*, Hsin-Yu Chen, and Chia-Ming Yang, "Light Addressable Potentiometric Sensor with Fluorine-Terminated Hafnium Oxide Layer for Sodium Detection", Japanese Journal of Applied Physics 49 (2010) 04DL05. (SCI)

65. Hsing-Kan Peng, Chao-Sung Lai*, and Jer-Chyi Wang, "Threshold Voltage Tunability of p-Channel Metal Oxide Semiconductor Field-Effect Transistor with Ternary HfxMoyNz Metal Gate and Gd2O3 High-k Gate Dielectric", Japanese Journal of Applied Physics 49 (2010) 04DA15(SCI)

66. S. Maikap, A. Prakash, W. Banerjee, Anirban Das, C.-S. Lai, "Characteristics of pH sensors fabricated by using protein-mediated CdSe/ZnS quantum dots", Microelectronics Reliability 50 (2010) 747–752(SCI)

67. Jer-Chyi Wang, Pai-Chi Chou, Chao-Sung Lai*, Wen-Hui Lee, and Chi-Fong Ai "Characteristics optimization of N2O annealing on tungsten nanocrystal with W/Si dual-sputtered method for nonvolatile memory application", Microelectronics Reliability 50 (2010) 639–642. (SCI)

68. Cheng-En Lue, Jer-Chyi Wang, Dorota G. Pijanowska, Chia-Ming Yang, I-Shun Wang, Huang-Chia Lee, Chao-Sung Lai*, "Hysteresis effect on traps of Si3N4 sensing membranes for pH difference sensitivity", Microelectronics Reliability 50 (2010) 738–741. (SCI)

69. Tseng-Fu Lu , Jer-Chyi Wang, Chia-Ming Yang, Chung-Po Chang, Kuan-I Ho, Chi-Fong Ai, Chao-Sung Lai*, "Non-ideal effects improvement of SF6 plasma treated hafnium oxide film based on electrolyte–insulator–semiconductor structure for pH-sensor application", Microelectronics Reliability 50 (2010) 742–746. (SCI)

70. Chao-Sung Lai*, Yi-Ting Lin, Cheng-En Lue, and Chia-Ming Yang , “Characterization on pH Sensing and Corrosion-Resistant of HfTaO Membrane with Post RTA Treatment for Food Industry”, Sensor Lett. 8, 720–724 (2010). (SCI)

71. Cheng-En Lue, Chao-Sung Lai*, I-Shun Wang, and Chia-Ming Yang, “Sensitivity of Trapping Effect on Si3N4 Sensing Membrane for Ion Sensitive Field Effect Transistor/Reference Field Effect Transistor Pair Application”, Sensor Lett. 8, 725–729 (2010). (SCI)

72. Jer-Chyi Wang, Chih-Ting Lin, Chao-Sung Lai*, and Jui-Lin Hsu “Nanostructure band engineering of gadolinium oxide nanocrystal memory by CF4 plasma treatment”, Appl. Phys. Lett. 97, 023513 (2010). (SCI)

73. Chyuan-Haur Kao, Hsiang Chen, Yu Tsung Pan, Jing Sing Chiu, Shih Po Lin, and Chao Sung Lai, “The Investigation of the High-k Gd2O3 (Gadolinium Oxide) Interdielectrics Deposited on the Polycrystalline Silicon” Journal of The Electrochemical Society, 157, 10, H915-H918, (2010). (SCI)

74. Jer-Chyi Wang, Chih-Ting Lin, Chao-Sung Lai*, Jui-Lin Hsu, and Chi-Fong Ai, "Improved characteristics of Gd2O3 nanocrystal memory with substrate high–low junction", Solid-State Electronics 54 (2010) 1493–1496.

75. Chyuan Haur Kao*, C. S. Lai, W. H. Sung, and C. H. Lee,“ The Characteristics of Fluorinated Polycrystalline Silicon Oxides and Thin Film Transistors by CF4 Plasma Treatment,” Thin Solid Films, 2010. (SCI)

76. Jer-Chyi Wang , Pai Chi Chou , Chao Sung Lai*, Jer Yi Lin , Wei Cheng Chang , Hsin-Chun Lu , Chih-I Wu , and Po Sheng Wang "Zero dipole formation at HfGdO/SiO2 interface by Hf/Gd dual-sputtered method", Journal of The Electrochemical Society, accepted, (2011). (SCI)

77. Tseng Fu Lu , Chao Sung Lai*, Chia-Ming Yang , Kuan-I Ho , Chi-Hung Chin , Dorota G. G. Pijanowska , Bohdan Jaroszewicz "Characterization of K+ and Na+-sensitive membrane fabricated by CF4 plasma treatment on hafnium oxide thin films on ISFET" Journal of The Electrochemical Society, accepted, (2011). (SCI)

78. Shian-Jyh Lin, Chao-Sung Lai*, Sheng-Tsung Chen, Yi-Jung Chan, Ruey-Dar Chang, Wei Chih. Wang, Brady Huang, Neng-Tai Shih, Graham Chuang, Chung-Yuan Lee, and Pei-Ing Lee "Improvement in Junction Breakdown and GIDL using Millisecond Flash Anneal (MFLA) in DRAM Product" Journal of The Electrochemical Society, 158 (4) H363-H369 (2011). (SCI)

79. Jer-Chyi Wang, Pai-Chi Chou, Chao-Sung Lai*, and Li-Chi Liu "Dual-sputtered Process Sensitivity of HfGdO Charge-Trapping Layer in SONOS-Type Nonvolatile Memory", Journal of Vacuum Science and Technology B, (2011). (SCI)

80. Chi-Hang Chin, Tseng-Fu Lu, Jer-Chyi Wang, Jung-Hsiang Yang, Cheng-En Lue, Chia-Ming Yang, Sheng-Shian Li, and Chao-Sung Lai*”Effects of CF4 Plasma Treatment on pH and pNa Sensing Properties of Light-Addressable Potentiometric Sensor with a 2-nm-Thick Sensitive HfO2 Layer Grown by Atomic Layer Deposition” Japanese Journal of Applied Physics 50 (2011) 04DL06. (SCI)

81. Jer-Chyi Wang, Tseng-Fu Lu, Hui-Yu Shih, Chia-Ming Yang, Chao-Sung Lai*, Chyuan-Haur Kao, and Tung-Ming Pan “Reference Electrode–Insulator–Nitride–Oxide–Semiconductor Structure with Sm2O3 Sensing Membrane for pH-Sensor Application”, Japanese Journal of Applied Physics 50 (2011) 04DL09. (SCI)

82. Cheng-En Lue, Ting-Chun Yu, Chia-Ming Yang, Dorota G. Pijanowska and Chao-Sung Lai* "Optimization of Urea-EnFET Based on Ta2O5 Layer with Post Annealing" Sensors, (2011), 11, 4562-4571 (SCI).

83. Min-Hsien Wu, Yu-HanChang, Yen-TingLiu, Yan-Ming Chen, Shih-Siou Wang, Hsin-YaoWang, Chao-Sung Lai, Tung-Ming Pan "Development of high through put microfluidic cell culture chip for perfusion 3-dimensional cell culture-based chemo sensitivity assay" Sensors and Actuators B:Chemical, (2011). (SCI)

84. Mu-Yi Hua, Hsiao-Chien Chen, Rung-Ywan Tsai, Chao-Sung Lai "A novel polybenzimidazole-modified gold electrode for the analytical determination of hydrogen peroxide" Talanta, (2011). (SCI)

85. Hsin-Chien Chen, Liann-Be Chang, Ming-Jer Jeng, and Chao-Sung Lai, “Characterization of laser carved micro channel polycrystalline silicon solar cell”, Solid-State Electronics 61 (2011) 23–28. (SCI)

86. Ying-Feng Chang,Shuo-Hui Hung, Yi-Jang Lee, Ran-Chou Chen, Li-Chen Su, Chao-Sung Lai, and Chien Chou* “Discrimination of Breast Cancer by Measuring Prostate-Specific Antigen Levels in Women’s Serum”, Anal. Chem. 2011, 83, 5324–5328. (SCI)

87. Tseng Fu Lu , Hao-Chun Chuang, Jer-Chyi Wang, Chia-Ming Yang, Pei-Chun Kuo, and Chao Sung Lai* “Effects of Thickness Effect and Rapid Thermal Annealing on pH Sensing Characteristics of Thin HfO2 Films Formed by Atomic Layer Deposition” Japanese Journal of Applied Physics, 2011, (SCI).

88. Jer-Chyi Wang, Tseng-Fu Lu, Hui-Yu Shih, Chia-Ming Yang, Chao-Sung Lai*, Chyuan-Haur Kao, and Tung-Ming Pan, “pH Sensing Characterization of Programmable Sm2O3/Si3N4/SiO2/Si Electrolyte–Insulator–Semiconductor Sensor with Rapid Thermal Annealing”, Japanese Journal of Applied Physics 50 (2011) (SCI).

89. Jer-Chyi Wang, Hsing-Kan Peng, Chao-Sung Lai*, Pai-Chi Chou, and Min-Jer Lee, "Effects of a HfMoN Metal Gate and Self-Aligned Fluorine-Ion Implantation on the Negative-Bias Temperature Instability of pMOSFETs With Gd2O3 Gate Dielectrics" IEEE ELECTRON DEVICE LETTERS, VOL. 32, NO. 8, AUGUST 2011. (SCI)

90. Chyuan Haur Kao, Jer Chyi Wang, Chao Sung Lai, Chuan Yu Huang, Jiun Cheng Ou, and Hsin Yuan Wang "Ti-doped Gd2O3 sensing membrane for electrolyte–insulator–semiconductor pH sensor" Thin Solid Films (2011).

91. Chyuan-Haur Kao, Hsiang Chen, Chiao Sung Lai, Jer Chyi Wang, Shih Po Lin, Kung Shao Chen, Chuan-Yu Huang, Jiun-Cheng Ou "Erbium Oxide as pH-sensing Membranes in Extended Gate Field Effect" Advanced Science Letters (2011).

92. Yi-Ting Lin, Yu-Hong Yu, Yu Chen, Guo-Jun Zhang, Shi-yang Zhu, Chia-MingYang, Kua-Yi Lu, and Chao-Sung Lai* "Vertical Silicon nanowires with Atomic Layer Deposition with HfO2 Membrance for pH Sensing Application", Journal of Mechanics in Medicine and Biology 2 Vol. 11, No. 5 (2011) 1–8.

93. Cheng-En Lue, I-Shun Wang, Chi-Hsien Huang, Yu-Ting Shiao, Hau-Cheng Wang, Chia-Ming Yang, Shu-Hao Hsu, Ching-Yu Chang, William Wang, Chao-Sung Lai*"pH sensing reliability of flexible ITO/PET electrodes on EGFETs prepared by a roll-to-roll process" , Microelectronics Reliability (2012).

94. Jer-Chyi Wang, Chih-Ting Lin, Chi-Hsien Huang, Chao-Sung Lai and Chin-Hsiang Liao, "Charge storage and data retention characteristics of forming gas-annealed Gd2O3-nanocrystal nonvolatile memory cell", Microelectronics Reliability (2012).

95. Jer-Chyi Wang, Chih-Ting Lin, Chia-Hsin Chen, Po-Wei Huang, and Chao-Sung Lai*, "Dynamic Charge Centroid on Data Retention of Double-Nanostructure Nonvolatile Memory", Applied Physics Express, 5(2012) SCI 3.013.

96. Jer-Chyi Wang, Chih-Ting Lin, Pai-Chi Chou, Chao-Sung Lai*, "Gadolinium-based metal oxide for nonvolatile memory applications", Microelectronics Reliability (2012) SCI 1.167.

97. I-Shun Wang, Yi-Ting Lin, Chi-Hsien Huang, Tseng-Fu Lu, Cheng-En Lue, Polung Yang, Dorota G Pijanswska, Chia-Ming Yang, Jer-Chyi Wang, Jau-Song Yu, Yu-Sun Chang, Chou Chien, and Chao-Sung Lai*, "Immobilization of enzyme and antibody on ALD-HfO2-EIS structure by NH3 plasma treatment", Nanoscale Research Letters (2012) SCI 2.726

98. Jung-Hsiang Yang, Tseng-Fu Lua, Jer-Chyi Wang, Chia-Ming Yang, Dorota G. Pijanowska, Chi-Hang Chin, Cheng-En Lue, Chao-Sung Lai* "LAPS with nanoscaled and highly polarized HfO2 by CF4 plasma for NH4 detection",Sensors and Actuators B (2012) SCI 3.898

99. Chung-Yuan Lee, Chao-Sung Lai*, Chia-Ming Yang, and David H.-L. Wang, "DRAM Data Retention and Cell Transistor Threshold Voltage Reliability Improved by Passivation Annealing Prior to the Deposition of Plasma Nitride

Layer" IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY (2012) SCI 1.503.

100. Ying-Chang Li, Chiuan-Chian Chiou, Ji-Dung Luo, Wei-Ju Chen, Li-Chen Sua,, Ying-Feng Chang, Yu-Sun Chang, Chao-Sung Lai, Cheng-Chung Lee, Chien Chou*, "Sensitive detection of unlabeled oligonucleotides using a paired surface plasma waves biosensor", Biosensors and Bioelectronics (2012) SCI 5.602.

101. Keng-Ku Liu, Wenjing Zhang,Yi-Hsien Lee,Yu-Chuan Lin,Mu-Tung Chang,Ching-Yuan Su,Chia-Seng Chang,Hai Li,Yumeng Shi,Hua Zhang,Chao-Sung Lai,and Lain-Jong Li*" Growth of Large-Area and Highly Crystalline MoS2 Thin Layers on Insulating Substrates" Nano Letters (2012) SCI 13.198, 8/152, CHEMISTRY, MULTIDISCIPLINARY.

102. Chyuan Haur Kao*, Jer Chyi Wang, Chao Sung Lai, Chuan Yu Huang, Jiun Cheng Ou, Hsin Yuan Wang "Ti-doped Gd2O3 sensing membrane for electrolyte–insulator–semiconductor pH sensor", Thin Solid Film (2012) SCI 1.890.

103. Chung-Yuan Lee; Chao-Sung Lai*; Chia-Ming Yang; and David HL Wang "Dependence of DRAM Device Performance on Passivation Annealing Position in Trench and Stack Structures for Manufacturing Optimization" IEEE Transactions on Semiconductor Manufacturing (2012) (SCI 0.722).

104. Huang, M.R.S., Liu, C.-P. , Wang, J.-C., Chen, Y.-K., Lai, C.-S., Fang, Y.-C., Shu, L. “Microstructural effect of gadolinium oxide nanocrystals upon annealing on electrical properties of memory devices” Thin Solid Film (2012).

105. Banerjee, W., Maikap, S., Lai, C.-S., Chen, Y.-Y., Tien, T.-C., Lee, H.-Y. , Chen, W.-S. , Chen, F.T., Kao, M.-J., Tsai, M.-J., Yang, J.-R. “Formation polarity dependent improved resistive switching memory characteristics using nanoscale (1.3 nm) core-shell IrO x nanodots”, Nanoscale Research Letters Volume 7, 22 (2012).

106. Chung-Yuan Lee, Chao-Sung Lai*, Chia-Ming Yang, Betty Lin, David HL Wang, Simon Lee, Chi- Hung Huang, and Chen Chang Wei, "Residual Clamping Force and DRAM Data Retention Improved by Gate Tungsten Etch Dechucking Condition in a Bipolar Electrostatic Chuck" accepted by Japanese Journal of Applied Physics (2012) (SCI 1.058).

107. Chao-Sung Lai, Jer-Chyi Wang, Li-Chun Chang, Yi-Kai Liao, Pai-Chi Chou, Wei-Cheng Chang, Chi-Fong Ai, and Wen-Fa Tsai “Characteristics of plasma

immersion ion implantation treatment on tungsten nanocrystal nonvolatile memory” Solid-State Electronics (2012) (SCI)

108. Chiu, H.-C. , Lin, C.-K., Lin, C.-W., Lai, C.-S. “Investigation of surface pretreatments on GaAs and memory characteristics of MOS capacitors embedded with Au nano-particles” Microelectronics Reliability (2012) (SCI).

109. Amit Prakash, Siddheswar Maikap, Chao Sung Lai, Heng Yuan Lee, W. S. Chen, Frederick T. Chen, Ming Jer Kao, and Ming Jinn Tsai “Improvement of Uniformity of Resistive Switching Parameters by Selecting the Electroformation Polarity in IrOx/TaOx/WOx/W Structure” Japanese Journal of Applied Physics 51 (2012) (SCI)

110. H.K. Peng, K. Cil, A. Gokirmak, G. Bakan, Y. Zhu, C.S. Lai, C.H. Lam, H. Silva "Thickness dependence of the amorphous-cubic and cubic-hexagonal phase transition temperatures of GeSbTe thin films on silicon nitride" Thin Solid Films,Volume 520, Issue 7, 31 January (2012), Pages 2976–2978. (SCI I.F. 1.890 , 4/18,MATERIALS SCIENCE, COATINGS & FILMS).

111. Wen-Kuan Yeh, Po-Ying Chen, Kwang-Jow Gan, Jer-Chyi Wang, and Chao Sung Lai "The impact of interface/border defect on performance and reliability of high-k/metal-gate CMOSFET" Microelectronics Reliability (2012).

112. Siddheswar Maikap, Sheikh Ziaur Rahaman, Atanu Das, Ya Hsuan Wu, Chao-Sung Lai, Ta-Chang Tien, Wei-Su Chen, Heng-Yuan Lee, Frederick T. Chen, Ming-Jinn Tsai, and Liann-Be Chang "Enhanced nanoscale resistive-switching memory characteristics and switching mechanism using high-Ge-content Ge0.5Se0.5 solid-electrolyte" Nanoscale Research Letters (2012).

113. Chi-Hsien Huang, Chih-Ting Lin, Jer-Chyi Wang, Chien Chou, Yu-Ren Ye, Bing-Ming Cheng and Chao-Sung Lai* “Tunable bandgap energy of fluorinated nanocrystals for flash memory applications produced by low-damage plasma treatment” Nanotechnology (2012)

114. Chia-Ming Yang, I.-Shun Wang, Yi-Ting Lin, Chi-Hsien Huang, Tseng-Fu Lu, Cheng-En Lue, Dorota G. Pijanswskad, Mu-Yi Hua, and Chao-Sung Lai* “Low Cost and Flexible Electrodes with NH3 Plasma Treatments in Extended Gate Field Effect Transistors for Urea Detection” Sensors and Actuators B:Chemical (2012).

115. Chung-Yuan Lee, Chao-Sung Lai, Yaw-Wen Hu, Wun Wang, Hao-Jan Chen,Yun-Zong Tian, Chia-Ming Yang and David H.-L. Wang “In-Line

Super-Mapping of Storage Capacitor for Advanced Stack DRAM Reliability" IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY (2013) SCI 1.503.

116. Chia-Ming Yang, Chung Yuan Lee, Yi-Chun Lin, Wei-Yao Wang, Jian-Shing Luo, San-Lin Liew, Ching-Shan Sung, Hsiao-Lung Chiang, Chih-Yuan Hsiao, Chao-Sung Lai "Negative Bias Temperature Instability for sputtering Modification in TiN Diffusion Barrier of p+ Poly-silicon Gate Stack in 50nm DRAMTechnology", IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY (2013) SCI 1.503.

117. Cher Ming Tan and Chao Sung Lai "Systematic Root Cause Analysis for GaP Green Light LED Degradation" IEEE TRANSACTIONS ON DEVICE AND MATERIALS RELIABILITY (2013) SCI 1.503.

118. Ying-Feng Chang, Jau-SongYu, Ya-TingChang, Li-ChenSu, Chih-ChingWu, Yu-Sun Chang, Chao-SungLai, ChienChou, "The utility of a high-throughputscanning biosensor in the detection of the pancreatic cancer marker ULBP2"Biosensors and Bioelectronics (2013) SCI 5.602.

119. Song-Bin Huang, Shih-Siou Wang, Chia-Hsun Hsieh, Yung Chang Lin, Chao-Sung Lai and Min-Hsien Wu "An integrated microfluidic cell culture system for highthroughput perfusion three-dimensional cell culturebased assays: effect of cell culture model on the results of chemosensitivity assays" Lab on a Chip, (2013).

120. Yen-Heng Lin, Anirban Das, and Chao-Sung Lai, "A Simple and Convenient Set-Up of Light Addressable Potentiometric Sensors (LAPS) for Chemical Imaging Using a Commercially Available Projector as a Light Source" Int. J. Electrochem. Sci., Vol. 8, (2013).

121. Yen-Heng Lin, Anirban Das, Min-Hsien Wu, Tung-Ming Pan, and Chao-Sung Lai, "Microfluidic Chip Integrated with an Electrolyte-Insulator-Semiconductor Sensor for pH and Glucose Level Measurement" Int. J. Electrochem. Sci., 8 (2013)

122. "Characterization of gadolinium oxide thin films with CF4 plasma treatment for resistive switching memory applications" Applied Surface Science (2013).

123. Jer-Chyi Wang, Chih-Ting Lin, Po-Wei Huang, Chao-Sung Lai, Li-Chun Chang "Hybrid polarity and carrier injection of gold and gadolinium oxide binanocrystals structure" Appl. Phys. Lett. 102, 083507 (2013).

124. Chi-Hsien Huang, Chao-Sung Lai, I-Shun Wanga, Kuan-I Hoa, Yi-Ting Lin, Chien Chou, and Chu-Fa Chan "High polarization and low repulsion HfO2 thin film for alkali metal ion detections by plasma system with a complementary filter"IEEE Sensors (2013).

125. Yen-Heng Lin, Ying-Ju Chen, Chao-Sung Lai, Yi-Ting Chen, Chien-Lun Chen, Jau-Song Yu, and Yu-Sun Chang "A negative-pressure-driven microfluidic chip for the rapid detection of a bladder cancer biomarker in urine using bead-based ELISA" Biomicrofluid (2013).

B. International Conference Paper:

1. Chao Sung Lai,, T.F. Lei, C.L. Lee, C.H. Peng and H.C. Wang, 1996 ”Low Temperature (850 °C) Two-Step N2O Anneal Thin Gate Oxides,” Materials Research Society (MRS) Spring Meeting, San Francisco, CA, USA. (EI)
2. Chao Sung Lai, G.Y. Chen, T.F. Lei and C.L. Lee, 1996 ”The Characterization of Polysilicon Oxide Nitrided in N2O,” International Electron Devices and Materials Symposium (IEDMS), Hsinchu, Taiwan, R.O.C.
3. Chao Sung Lai, T.S. Chao, T.F. Lei, C.L. Lee, T.Y. Huang and C.Y. Chang, 1997 ”The improvements of reliability of MOSFET’s with N2O Nitrided Gate oxide and N2O polysilicon gate reoxidation,” International Conference on Solid State Devices and Materials (SSDM), Humamatsu, Japan.
4. Lee MZ, Chao Sung Lai, Lei TF, Lee CL, 1998, “Trapping Variation during Dynamic Electric Stress”, International Electron Devices and Materials Symposium (IEDMS), Tainan, Taiwan, R.O.C.
5. Lee CW, Chao Sung Lai, Lei TF, Lee CL, 1998, “The Characteristics of thin Polyoxides Grown on P-implanted Disilane Polysilicon Films”, International Electron Devices and Materials Symposium (IEDMS), Tainan, Taiwan, R.O.C.
6. T. S. Chao, J. L. Chen, Chao Sung Lai, “High Quality Ultra-thin Oxide (2.4nm) Prepared by Clustered Vertical Furnace with In-Situ HF-Vapor Pre-Gate Oxide Cleaning”, IEEE International Symposium on VLSI Technology, Systems, and Applications, 1999.(EI)
7. Chao Sung Lai and Z. S. Wang, “Characterization of Soft Breakdown for Sub-4nm Oxides with HF-Vapor Treatments”, Electron Devices and Materials Symposium (EDMS), 1999.

8. Chao Sung Lai and K. M. Liu, “Impacts of Boron Penetration on Deep-Submicron Dual Gates CMOS”, Electron Devices and Materials Symposium (EDMS), 1999.

9. M. Z. Lee and Chao Sung Lai, “High Quality TEOS Oxide Deposited by PECVD with RTA N2O Annealing”, Electron Devices and Materials Symposium (EDMS), 1999.

10. J. W. Lee and Chao Sung Lai, “ A Yield Issue of TEOS Oxide Deposited on Stacked Disilane Polysilicon Films”, Electron Devices and Materials Symposium (EDMS), 1999.
11. T. S. Chao, J. L. Chen, C. S. Lai, H. C. Lin, and T. Y. Huang, “ High Quality Ultr-thin Oxide (2.4 nm) Prepared by Clustered Vertical Furnace with In-Situ HF-Vapor Pre-Gate Oxide Cleaning|”, 1999 International Symposium on VLSI Technology, Systems, and Applications (VLSI-TSA), Taipei, Taiwan. (EI)
12. Chao Sung Lai, Z. S. Wang, M. C. Chang and T. S. Chao, 2000, “The polarity dependence of soft-breakdown characterization for ultra-thin gate oxides affected by nitrogen and fluorine”, 2000 International Conference on Solid State Devices and Materials (SSDM), Japan.
13. (Invited Talk) *Chin-Nan Hsiao, and* Chao Sung Lai “Polarity Dependence of the Characterization of the Inter-Poly Oxide with Sharpen Tips for Split Gate Flash Memory” 2002 SEMICON Taiwan, Taipei.
14. Minchen Chang, Jengping Lin, Ruey Dar Chang and Chao Sung Lai “A New GIDL Model to Include the Substrate Bias Effects” 2002, IEDMS 2002, Taiwan.
15. Chao Sung Lai, W. C. Sung, and J. J. Yang, “The Threshold Voltage Adjustment of Molybdenum Metal Gate by Nitrogen-Controlled Sputtering” 2002, IEDMS 2002, Taiwan.
16. Chao-Sung Lai, Chia-Ming Yang, Zhe-Yi Wang, Woei-Cherng Wu, Cheng-En Lue “The Ion Sensitive Property of Hafnium Oxide”, 2002, ACST91, THE 9th SYMPOSIUM ON SENSING TECHNOLOGY, Taiwan, Tao-Yuan.
17. Chao-Sung Lai, Chia-Ming Yang, Zhe-Yi Wang, Woei-Cherng Wu, Cheng-En Lue “Study on the Area and Anneal Characteristic of Tin oxide in EIS and EGFET”, 2002, ACST91, THE 9th SYMPOSIUM ON SENSING TECHNOLOGY, Taiwan, Tao-Yuan.
18. Chao Sung Lai, and Kung Ming Fan “A Novel Process for Oxynitride by Post-Oxidation of NH_3 Plasma Nitridation”, 2003 International Conference on SolidState Devices and Materials (SSDM2003), Japan.
19. CHIA CHI MA, CHAO SUNG LAI, RAY DER CHANG and C. A. HUANG*, “The Characterization of N_2O Nitrided HfO_2 Thin Film”, 4th WSEAS Int.Conf. on NANOELECTRONICS and NANOTECHNOLOGY (ICONN 2004).

20. CHAO SUNG LAI, Sheng Yao Yang, Ching Nan Hsiao, Kung Ming Fan and and C. A. HUANG*, “The Threshold Voltage Adjustment of Molybdenum Stack Gate by Nitrogen-Controlled Sputtering” 4th WSEAS Int.Conf. on NANOELECTRONICS and NANOTECHNOLOGY (ICONN 2004).
21. Y. T. Lin, P. -Y. Chiang, C. S. Lai, S. S. Chung, George Chou, C. T. Huang, Paul Chen, C. H. Chu, and C. C.-H. Hsu, “New Insights Into the Charge Loss Components in a SONOS Flash Memory Cell Before and After Long Term Cycling”, 2004 IPFA, 11th IEEE INTERNATIONAL SYMPOSIUM ON THE PHYSICAL AND FAILURE ANALYSIS OF INTEGRATED CIRCUITS, *IPFA 2004*, 2004, p 239-242. (EI)
22. S. S. Chung, C. H. Yeh*, H. J. Feng, C. S. Lai*, J. J. Yang*, C. C. Chen**, Y. Jin**, S. C. Chen**, and M. S. Liang** “The Impact of STI Induced Reliabilities for Scaled p-MOSFET in an Advanced Multiple Oxide CMOS Technology”, 2004 IPFA, 11th IEEE INTERNATIONAL SYMPOSIUM ON THE PHYSICAL AND FAILURE ANALYSIS OF INTEGRATED CIRCUITS, *IPFA 2004*, 2004, p 279-282. (EI)
23. M. Chang, J. Lin, R. D. Chang, S. N. Shih*, C. S. Lai, and P. I. Lee* “Packaging Process Induced Retention Degradation of 256Mbit DRAM with Negative Wordline Bias” 2004 IPFA, 11th IEEE INTERNATIONAL SYMPOSIUM ON THE PHYSICAL AND FAILURE ANALYSIS OF INTEGRATED CIRCUITS *IPFA 2004*. (EI)
24. Chao Sung Lai , Woei Cherng Wu, Kung Ming Fan, Jer Chyi Wang, Shian-Jyh Lin, “Hysteresis Phenomenon Improvements of HfO2 by CF4 Plasma Treatment”, SSDM2004 in Tokyo, Japan.
25. Chao Sung Lai et al., “Nitrogen Effects on the sensitivity of TaxN for Ion Sensing Devices”, 2004 IEEE INTERNATIONAL CONFERENCE ON SEMICONDUCTOR ELECTRONICS (ICSE 2004), Kuala Lumpur, Malaysia. (EI)
26. Chao Sung Lai et al., “The Surface Side De-hydration mechanism for Si3N4 Sensing Membrane by post- baking Treatment”, 2004 IEEE INTERNATIONAL CONFERENCE ON SEMICONDUCTOR ELECTRONICS (ICSE 2004) , Kuala Lumpur, Malaysia.(EI)
27. Chao Sung Lai et al., “The Polarity Dependence of Capacitor for HfO2 Affected by Post-CF4 Plasma Treatment”, 2004 IEEE INTERNATIONAL CONFERENCE ON SEMICONDUCTOR ELECTRONICS (ICSE 2004) , Kuala Lumpur, Malaysia. (EI)
28. Chao Sung Lai et al., “Ion Sensing Improvements of Hafnium Oxide by Nitrogen Incorporation”, 2004 IEEE INTERNATIONAL CONFERENCE ON

SEMICONDUCTOR ELECTRONICS (ICSE 2004) , Kuala Lumpur, Malaysia. (EI)

29. Chao Sung Lai, “Localization of NBT hot carrier-induced oxide damages in SOI pMOSFET’s,” 2005 International Reliability Physics Symposium, San Jose, California. (EI)
30. Steve S. Chung, Y. R. Liu, S. J. Wu, C. S. Lai, Y. C. Liu, D. F. Chen, H. S. Lin, W. T. Shiau, C. T. Tsai, S. C. Chien, and S. W. Sun, “ A New Insight into the Degradation Mechanisms of Various Mobility-Enhanced CMOS Devices with Different Substrate Engineering”, International Electron Devices Meeting (IEDM) 2005, Washington DC, USA.
31. S.S. Chung, Y.R. Liu, C.F. Yeh, S.R. Wu, Chao Sung Lai, T.Y. Chang, J.H. Ho, C.Y. Liu, C.T. Huang, C.T. Tsai, W.T. Shiau and S.W. Sun, “A New Observation of the Germanium Outdiffusion Effect on the Hot Carrier and NBTI Reliabilities in Sub-100nm Technology Strained-Si/SiGe CMOS Devices”, 2005 Symposium on VLSI Technology, Kyoto, Japan. (EI)
32. Jer Chyi Wang , and Chao Sung Lai, “Characterization of Novel HfTiO Gate Dielectrics Post-treated by NH3 Plasma and Ultra-violet Rays”, SSDM2005 inKobe, Japan.
33. Chao Sung Lai et al, “Ion Polarity Dependent Voltage Shifts of SiGe Membrane for pH Sensor”, SSDM2005 in Kobe, Japan.
34. Chao Sung Lai et al, “thermal stability improvements for HfO2 by fluorine implantation”, SSDM2005 in Kobe, Japan.
35. Chao Sung Lai et al, “Thickness Effects on pH Response of HfO2 Sensing Dielectric Improved by Rapid Thermal Annealing”, SSDM2005 in Kobe, Japan.
36. Chao Sung Lai et al, “Work Function Adjustment by Nitrogen Incorporation in HfN Gate Electrode”, SSDM2005 in Kobe, Japan.
37. Chao Sung Lai et al, “Atomic Layer Deposition Stacked Tantalum Nitride Resistor”, 208th ECS Meeting (2005), Los Angles, USA.
38. Chao Sung Lai et al, “Improvements of MOS Capacitors with Stacked ALD Sputtering TaN Metal Gates”, 208th ECS Meeting (2005), Los Angles, USA.
39. Chao Sung Lai et al., “Fluorinated ALD Al_2O_3 Gate Dielectrics by CF_4 Plasma”, 2005 International Semiconductor Device Research Symposium, ISDRS 2005, Maryland, USA. (EI)
40. Tung-Ming Pan, Chun-Lin Chen, Jian-Der Lee, Chun-I Hsieh, and Chao-Sung Lai, “Electrical Characteristics of Erbium Oxide Films on Silicon Substrate by Reactive RF sputtering for Different Metal Gate”, 209th ECS Meeting (2006), Denver, Colorado, USA.

41. Liann-Be Chang, Yu-Lin Lee, Hong-Hsi Ko, Chao-Sung Lai, and Chih-Yao Wang "The pH-Sensitive Characteristics of Thermal ZrO2 / SiO2 Stacked Oxide Sensors", 209th ECS Meeting (2006), Denver, Colorado, USA.
42. Chao Sung Lai, Chen Sheng Huang, K. M. Fan, T. M. Pan, C. H. Kao, Z.-G. Lin; C.-S. Chang and C.-P. Chou , "Nano-Charge-Trapping Devices Fabricated by One-Step Oxidation on Poly-Si_xGe_{1-x}", 2006 IEEE SILICON NANOELECTRONICS WORKSHOP, Honolulu, HI, USA. (EI)
43. C. H. Huang, C. L. Chang, Y. Y. Yang, T. Suryasindhu, W. -C. Liao, Y. -H. Su, P. W. Li, C.-Y. Liu, C. S. Lai, J. -H. Ting, C. S. Chu, and T. -H. Lee, "Nanothick Layer Transfer of Hydrogen-implanted Wafer Using Polysilicon Sacrificial Layer", 2006 MRS Spring Meeting, San Francisco, USA.
44. Chao Sung Lai et al., "Nitrogen Induced Extrinsic States (NIES) in Effective Work Function Instability of TiNx/SiO2 and TiNx/HfO2 Gate Stacks", 2006 International Conference on Solid State Devices and Materials, Kanagawa, Japan.
45. Chao Sung Lai et al., "Novel process techniques for ISFET/REFET micro chip based on common Si3N4 sensing membrane", 2006 International Conference on Solid State Devices and Materials, Kanagawa, Japan.
46. Chao Sung Lai et al., "Current Transportation Mechanism and Interface States Characterization of Sputtered Gd2O3 Gate Dielectrics for ULSI Application ", 2006 International Conference on Solid State Devices and Materials, Yokohama, Japan.
47. Chao Sung Lai, Kung Ming Fan, Hsing Kan Peng, Shian Jyh Lin, Chung Yuan Lee, Chi Fong Ai, "Mechanism and Relationship between Capacitance Dispersion and Dipole Oscillator Model for Fluorinated Al2O3", 2006 International Workshop on Dielectric Thin Films for Future ULSI Devices, Kanagawa, Japan.
48. Chao-Sung Lai, Hsing-Kan Peng, Kung-Ming Fan, Jer-Chyi Wang, Shian-Jyh Lin, Chung-Yuan Lee, "Nitrogen Incorporation and Post Metal Anneal Effect on Metal Work Function of HfNx/Al2O3/p-Si Gate Stack", 2006 International Workshop on Dielectric Thin Films for Future ULSI Devices, Kanagawa, Japan.
49. **C. S. Lai**, T. C. Wang, C. M. Yang and T. F. Lu, "The Multi-Channel Measurements for pH-Sensitivity and Drift Coefficient of Thin Hafnium Oxide with CF4 Plasma Treatment", International Electron Devices and Materials Symposia 2006 (IEDMS2006), Tainan, Taiwan.
50. **C. S. Lai,** J. Y. Wong, S. C. Yang, C. T. Lin, "Charge Trapping Characteristics of TiNx/SiO2 and TiNx/HfO2 Gate Stacks under Different Gate Voltage Stress" International Electron Devices and Materials Symposia 2006 (IEDMS2006), Tainan, Taiwan.

51. C. H. Kao, **C. S. Lai**, W. H. Sung, H. K. Peng, Etching Enhancement of HfO2 by SF6 with O2 Ion-Bombardment" International Electron Devices and Materials Symposia 2006 (IEDMS2006), Tainan, Taiwan.

52. S.S. Chung, D.C. Huang, Y.J.Tsai, **C.S. Lai**, C.H. Tsai, P.W. Liu, Y. H. Lin, C.T.Tsa, G.H. Ma, S.C. Chien, and S. W. Sun "New Observations on the Uniaxial and Biaxial Strain-Induced Hot Carrier and NBTI Reliabilities for 65nm Node CMOS Devices and Beyond", International Electron Devices Meeting (IEDM) 2006, San Francisco, CA, USA.

53. W. H. Sung, C. H. Kao,H. K. Peng, S. F. Huang,W. F. Tsai, C. F. Ai,C. R. Chen and **C. S. Lai**, "Temperature Polycrystalline Silicon (LTPS) Thin-Film Transistors (TFT) with Low Trapping and Off Current by CF4 Plasma", 2007 International Conference on Solid State Devices and Materials, Ibaraki, Japan.

54. C. S. Lai, C. W. Huang, H. K. Peng, C. H. Chen, Y. C. Fang, L. Hsu, H. C. Wang, C. Y. Lee and S. J. Lin "Full Range Work Function Modulation by Nitrogen Incorporation in Hf-Mo Binary Alloy Gate Electrode" , 2007 International Conference on Solid State Devices and Materials, Ibaraki, Japan.

55. T. F. Lu, Y. C. Lin, C. M. Yang, **C. S. Lai**, D. G. Pijanowska and B. Jaroszewicz "pH Sensing Performance and Electrical Characterization on Hafnium Oxide Gate ISFETs with Single and Dual Stack Insulator by RF Sputtering"2007 International Conference on Solid State Devices and Materials, Ibaraki, Japan.

56. T. C. Wang, T. F. Lu1, C. H. Chin, C. E. Lue, C. M. Yang, Y. C. Fang, L. Hsu, H. C. Wang and **C. S. Lai**, "Novel inorganic pH insensitive membrane prepared by post N2O plasma treatment on conventionalSi3N4/SiO2 stack layer for REFET application"2007 International Conference on Solid State Devices and Materials, Ibaraki, Japan.

57. **Chao Sung Lai**, Cheng En Lue, Chia Ming Yang, Hen Wei Lu, Wei Cheng Lin, "Si3N4 membranes for integrated ISFET and REFET application fabricated by thickness and RTA modification", 2007 East Asia Conference on Chemical Sensors, Singapore.

58. Kung Ming Fan, **Chao Sung Lai**, Yu Ching Fang, Chi Fong Ai, and Chih Rong Chen, "Improvement of Charge Programming and Retention by NH3 Plasma Treatment on Tunnel Oxide for SiO2/SixGey/SiO2 Tri-layer Memory Devices, " 2007 International Semiconductor Device Research Symposium, ISDRS 2007, Maryland, USA. (EI)

59. **Chao Sung Lai**, D. C. Huang, and S. S. Chung, “Diemesional Dependences of the Dynamic-NBTI with 1.2 nm N2O-ISSG Oxynitrides, ” 2007 International Semiconductor Device Research Symposium, ISDRS 2007, Maryland, USA. (EI)

60. Wang, K.-T., Chao, T.-S., Wu, W.-C., Lai, C.-S. "The polarity dependence of ONO thickness for wrapped-select-gate (WSG) SONOS memory" 2007 Records of the IEEE International Workshop on Memory Technology, Design and Testing , art. no. 4547617, pp. 51-54

61. Hsin Yu Chen, **Chao Sung Lai**, Chi Hung Chin, Cheng En Lue, and Chia Ming Yang, “Characterization of single and stacked layer HfO2 sensing membrane based on light addressable potentiometric sensor ” 2008 International Symposium on Biomedical Engineering, Taoyuan, Taiwan, R.O.C

62. C. S. Lai, H. K. Peng, C. W. Huang, C. H. Chen, Y. C. Fang, L. Hsu, H. C. Wang, C. Y. Lee and S. J. Lin “ Fermi-level Pinning Effect at the Interface of HfxMoyNz Metal Nitride Gate and HfO2 Dielectric” 2008, MRS Meeting, USA.

63. J. Y. Wong, J. C. Wang, C. T. Lin, H. K. Peng, Y. C. Fang, L. Hsu, H. C. Wang, C. S. Lai “Highly Robust Thermal Stability of Metal-Rich Gd Nanocrystal Memory for High Density Flash Application” 2008, MRS Meeting, USA.

64. W.Y. Chuang, **Chao Sung Lai**, T.F Lu, C.M. Yang and Y.C. Chen, “Optimization on HfxOyWz membrane by co-sputtering for high pH sensitivity and low light-induced shift ” 2008 International Symposium on Biomedical Engineering, Taoyuan, Taiwan, R.O.C

65. **Chao Sung Lai**, Wei Chung Lin, Szu Chieh Wang, Cheng En Lue, and Chia Ming Yang, “Study on pHpzc of HfO2 sensing membrane with single and stacked layer structure measured by different ac frequency” 2008 International Electron Devices and Materials Symposia, Taichung, Taiwan, R.O.C

66. Chen En Lue, **Chao Sung Lai**, Wei Cheng Lin, and Chia Ming Yang ”Frequency dependences of pH sensitivity and light immunity for single and stacked HfO2 EIS structure” 2008 International Conference on Solid State Devices and Materials, Tsukuba, Japan.

67. Hsing Kan Peng, **Chao Sung Lai**, Kung Ming Fan, and Shian Jyh Lin, “Negative Bias Temperature Instability (NBTI) of pMOSFETs with Novel HfxMoyN z Metal Gate Electrodes” 2008 International Conference on Solid State Devices and Materials, Tsukuba, Japan.

68. Chih Wei Chen, and **Chao Sung Lai** “Low Temperature Polycrystalline Silicon Thin Film Transistor with Fluorinated High-K HfO2 Gate Dielectric By HF Dip

and CF4 plasma" 2008 International Conference on Solid State Devices and Materials, Tsukuba, Japan.

69. **Chao Sung Lai**, Szu Chieh Wang, Cheng En Lue, and Chia Ming Yang "Novel research of differential pH response based on Si3N4 EIS with different Substrates and Structures" 2008 International Electron Devices and Materials Symposia, Taichung, Taiwan, R.O.C

70. Yu Kai Chen, **Chao Sung Lai**, Jer Chyi Wang, Pai Chi Chou, Chih Ting Lin , Yu Ching Fang, Li Hsu, Chuan Pu Liu, and R. S. Huang, "Temperature Effects on Recrystallization and Improvements of Pure Gadolinium(Gd) Nanocrystal (NC) for Flash Memory" 2008 International Conference on Solid State Devices and Materials, Tsukuba, Japan.

71. Woei Cherng Wu, Tien Sheng Chao, Te Shin Chiu, **Chao Sung Lai**, Jer Chyi Wang, Ming Wen Ma, and Wen Cheng Lo, "New Observation on PBTI Characteristics of Contact Etching Stop Layer (CESL) Induced Tensile Strained HfO2 nMOSFET" 2008 International Conference on Solid State Devices and Materials, Tsukuba, Japan.

72. Woei-Cherng Wu, **Chao-Sung Lai**, Shih-Ching Lee, Ming-Wen Ma, Tien-Sheng Chao, Jer-Chyi Wang, "Fluorinated HfO2 Gate Dielectrics Engineering for CMOS by pre- and post-CF4 Plasma Passivation" 2008 IEDM, CA, USA.

73. Kung Ming Fan, Chen Yu Lo, **Chao Sung Lai**, Shang Feng Huang, Wen Fa Tsai, and Chi Fong Ai, "Low Energy N2 Plasma Immersion Ion Implantation (PIII) for Multiple-oxide-thickness " 2008 International Workshop on Dielectric Thin Films for Future ULSI devices, Tokyo, Japan.

74. Pai-Chi Chou, **Chao-Sung Lai**, Woei-Cherng Wu, Li-Chi Liu, Yu-Ching Fang, Li Hsu, and Hui-Chun Wang, "High-k HfGdO Charge Trapping Layer in SONOS-type Nonvolatile Memory by In Situ RF Dual-Sputtering Method" 2008 International Workshop on Dielectric Thin Films for Future ULSI devices, Tokyo, Japan.

75. **Chao-Sung Lai**, Tz-An Huang, and Hsing-Kan Peng, "Characterization of Fluorine-Ion Implant effects on p-channel LTPS TFTs with SiON Gate Dielectric" 2008 International Workshop on Dielectric Thin Films for Future ULSI devices, Tokyo, Japan.

76. Lin, S.-J., Lai, C.-S., Chen, S.-T., Chen, Y.-J., Huang, B., Shih, N.-T., Lee, C.-Y., Lee, P.-I. "Integration of millisecond flash anneal on CMOS devices for DRAM

manufacturing" 2008 International Symposium on VLSI Technology, Systems, and Applications, Proceedings, art. no. 4530817, pp. 99-100

77. Chung, W.-Y., Yang, C.-M., Lu, T.-F., Lai, C.-S. "Sensitivity improvements of HfxWyOz sensing membranes for pK sensors based on electrolyte-insulator-semiconductor structure" 2009 Proceedings of IEEE Sensors , art. no. 5398574, pp. 1124-1127

78. Cheng-En Lue, Dorota G. Pijanowska, Chao-Sung Lai, Bohdan Jaroszewicz, Yi-Tin Lin, and Chia-Ming Yang, "Comparison of single and stacked sensing membrane for pH-ISFET" E-MRS Fall Meeting 2009 Warsaw, Poland.

79. Chao-Sung Lai, Cheng-En Lue, Yi-Tin Lin, Szu-Chieh Wang, Chia-Ming Yang" Optimization of a novel HfTaO membrane for pH sensing and applied to food industry " E-MRS Fall Meeting 2009 Warsaw, Poland.

80. H. Y. Chen, C. E. Lue and C. S. Lai “Light-Addressable Potentiometric Sensor with Fluorine Terminated Hafnium Oxide for Sodium Detection”, 2009 International Conference on Solid State Devices and Materials, Tohoku University, Miyagi, Japan.

81. H. K. Peng, C. S. Lai and J. C. Wang," Threshold Voltage (Vth) Tunability of pMOSFETs with Ternary HfxMoyNz Metal Gate and Gd2O3 High-k Gate Dielectric", 2009 International Conference on Solid State Devices and Materials, Tohoku University, Miyagi, Japan.

82. W. C. Wu, T. S. Chao, K. T. Wang, S. C. Lee, T. H. Chiu, T. Y. Lu, C. S. Lai, J. C. Wang, M. W. Ma, K. H. Kao and W. C. Lo,"Novel Dynamic Threshold Voltage Contact Etching Stop Layer (DT-CESL) Strained HfO2 nMOSFET for Very Low Voltage Operation (0.7V)", 2009 International Conference on Solid State Devices and Materials, Tohoku University, Miyagi, Japan.

83. C. S. Lai, C. M. Wu, C. E. Lue, T. F. Lu, C. M. Yang and H. Y. Chen, "A Novel Differential LAPS with PVC and HfO2 Sensing Membranes for pH Sensors", 2009 International Conference on Solid State Devices and Materials, Tohoku University, Miyagi, Japan.

84. Prakash, A., Das, A., Maikap, S., Lai, C.-S. "pH sensor using protein-mediated gold nanocrystal array" 2009 9th IEEE Conference on Nanotechnology, IEEE NANO 2009 , art. no. 5394662, pp. 854-857

85. Lu, T.-F., Wang, J.-C., Lai, C.-S., Yang, C.-M., Wu, M.-H., Liu, C.-P., Huang, R.-S., Fang, Y.-C. "A novel flash-ion-sensitive field-effect transistor (FISFET)

with HfO 2/Gd2O3(Gd) nano-crystal/SiO2 sensing membranes under super nernstian phenomenon for ph and urea detection" 2009 Technical Digest - International Electron Devices Meeting, IEDM , art. no. 5424289, pp. 26.4.1-26.4.4

86. Tung-Ming Pan, Chao-Wen Lin, Jian-Chi Lin, Yu-Kai Chien, Min-Hsien Wu, and Chao-Sung Lai, "Nd_2TiO_5 thin membrane electrolyte-insulator-semiconductor for pH detection and urea biosensor," *in MNC*, 2009, 18D-7-117.

87. Ho, K.-I., Lu, T.-F., Chang, C.-P., Lai, C.-S., Yang, C.-M. " Sodium and potassium ion sensing properties of EIS and ISFET structures with fluorinated hafnium oxide sensing film" 2009 Proceedings of IEEE Sensors , art. no. 5398575, pp. 1128-1131

88. Wu, W.-C., Lai, C.-S., Chiu, H.-H., Wang, J.-C., Chou, P.-C., Chao, T.-S. "Fluorinated CMOS HfO2 for high performance (HP) and low stand-by power (LSTP) application by pre- and post-CF4 Plasma Passivation " 2010 2010 Proceedings of the European Solid State Device Research Conference, ESSDERC 2010 , art. no. 5618191, pp. 416-419

89. (Invited) Lai, C.-S., Wu, W.-C., Chiu, H.-H., Wang, J.-C., Chou, P.-C., Chao, T.-S. "Improvements of Fermi-level pinning and NBTI by fluorinated HfO 2-CMOS " 2010 2010 IEEE International Conference of Electron Devices and Solid-State Circuits, EDSSC 2010 , art. no. 5713757.

90. H. K. Peng, G. Bakan, C. S. Lai, C. Lam, A. Gokirmak, H. Silva, “Effect of Film Thickness on Crystallization Behavior of Doped GeSb Thin Films” CMOC, 2010.

91. Wang, J.-C., Lu, T.-F., Liu, C.-Y., Yang, C.-M., Lai, C.-S. "The super nernst phenomena of hydrogen ion sensor with HfO 2/Si3N4/SiO2 multiple sensing membranes " 2011 ISOB 2011 - Proceedings of the 1st International Symposium ISOB 2011 - Proceedings of the 1st International Symposium on Bioengineering , pp. 10-15

92. Lin, Y.-T., Yu, Y.-H., Chang, T.-C., Chen, Y., Zhang, G.-J., Zhu, S.-Y., Lai, C.-S. "Novel pH sensor based on vertical silicon nanowire electrilyte-insulator-semiconductor structure " 2011 ISOB 2011 - Proceedings of the 1st International Symposium ISOB 2011 - Proceedings of the 1st International Symposium on Bioengineering , pp. 16-21

93. Wang, J.-C., Lai, C.-S., Kao, C.-H., Shih, H.-Y., Lu, T.-F. "Robust PH sensing characteristics of RINOS structure with SM 2O3 sensing membrane and rapid thermal annealing for biosensor application " 2011 ISOB 2011 - Proceedings of

the 1st International Symposium ISOB 2011 - Proceedings of the 1st International Symposium on Bioengineering , pp. 27-33

IEEE IEDM (2005-2009)

2009 Lu, T.-F., Wang, J.-C., Lai, C.-S.*, Yang, C.-M., Wu, M.-H., Liu, C.-P., Huang, R.-S., Fang, Y.-C. “A novel flash-ion-sensitive field-effect transistor (FISFET) with HfO2/Gd2O3(Gd) nano-crystal/SiO2 sensing membranes under super nernstian phenomenon for ph and urea detection” 2009 Technical Digest - International Electron Devices Meeting, IEDM , art. no. 5424289, pp. 26.4.1-26.4.4

2008 Wu, W.-C., Lai, C.-S.*, Lee, S.-C., Ming-Wen, M., Chao, T.-S., Wang, J.-C., Hsu, C.-W.,Rowell, N. “Fluorinated HfO2 gate dielectrics engineering for CMOS by pre-and post-CF4 plasma passivation” 2008 Technical Digest - International Electron Devices Meeting, IEDM , art. no. 4796706

2007 Chung, S.S., Tseng, Y.H., Lai, C.S., Hsu, Y., Ho, E., Chen, T., Peng, L.C., Chu, C.H. “Novel ultra-low voltage and high-speed programming/erasing schemes for SONOS flash memory with excellent data retention” 2007 Technical Digest - International Electron Devices Meeting, IEDM , art. no. 4418972, pp. 457-460

2006 Chung, S.S., Huang, D.C., Tsai, Y.J., Lai, C.S., Tsai, C.H., Liu, P.W., Lin, Y.H., (...), Sun, S.W. “New observations on the uniaxial and biaxial strain-induced hot carrier and NBTI reliabilities for 65nm node CMOS devices and beyond” 2006 Technical Digest - International Electron Devices Meeting, IEDM , art. no. 4154193

2005 Chung, S.S., Liu, Y.R., Wu, S.J., Lai, C.S., Liu, Y.C., Chen, D.F., Lin, H.S., (...), Sun, S.W. “A new insight into the degradation mechanisms of various mobility-enhanced CMOS devices with different substrate engineering” 2005 Technical Digest - International Electron Devices Meeting, IEDM 2005, art. no. 1609407, pp. 559-562

專利:

1 1996/4/1 84102311 發明 以氮化複晶矽閘極防止 P 型金氧半場效電晶體之硼穿透效應之方法 77658 李崇仁;林永豪;雷添福;賴朝松

2 1997/5/1 84112603 發明 具偏移量之垂直式底閘極複晶矽之薄膜電晶體製程 86313 李崇仁;雷添福;賴朝松

3 1997/7/1 85106474 發明 一種極薄介電層之製造方法 87773 王漢卿;李崇仁;彭俊洪;雷添福;趙天生;賴朝松

4 2003/6/21 91110271 發明 形成瓶型溝槽之方法 182177 林瑄智;賴朝松

5 2003/9/1 91122282 發明 形成瓶型溝槽的方法 187642 林瑄智;何欣戎;賴朝松;蔡子敬

6 2003/10/21 91125224 發明 形成瓶型溝槽之方法 190063 林瑄智;洪海涵;葉財龍;賴朝松

7 2004/5/21 92121763 發明 多位元垂直記憶單元及其製造方法 202890 蕭清南 HSIAO, CHING NAN;賴朝松 LAI, CHAO SUNG;黃永孟 HUANG, YUNG MENG

8 2004/6/21 92117375 發明 唯讀記憶單元及其製造方法 206258 蕭清南 HSIAO, CHING NAN;賴朝松 LAI, CHAO SUNG;黃永孟 HUANG, YUNG MENG;莊英政 CHUANG, YING CHENG

9 2005/6/1 93108896 發明 生醫檢體離子感應場效電晶體之封裝製程 I233675 賴朝松;楊家銘;史望平;葉源益;章才泰

10 2005/11/21 93108895 發明 生醫檢體離子感應場效電晶體之製程及結構 I243899 賴朝松;楊家銘;史望平;葉源益;章才泰

11 2007/12/21 91110048 發明 形成浮動閘極的方法 I291719 林瑄智 LIN SHIAN JYH;黃仲麟 CHUNG LIN HUANG;黃明元 MING-YUAN HUANG;賴朝松 CHAO SUNG LAI;陳國忠 KUO-CHUNG CHEN

12 2009/2/1 96126765 發明 電晶體結構及其製程 公告中 賴朝松 LAI, CHAO SUNG;彭興淦 PENG, SHING KAN;林瑄智 LIN, SHIAN JYH;李中元 LEE, CHUNG YUAN TRANSISTOR STRUCTURE AND METHOD OF MAKING THE SAM

13 2009/3/1 96131853 發明 於射出成型製程時進行脫模的方法 賴朝松 LAI, CHAO SUNG

14 2009/3/21 94133542 發明 生化離子感測器 I307771 張連璧 CHANG, LIANN BE;柯鴻禧;王志耀;賴朝松 LAI, CHAO SUNG;李育筱;薛清全

15 2009/6/16 96146920 發明 用以蝕刻含鉿鉬之合金材料的蝕刻液及使用此蝕刻液的蝕刻方法及其應用 公告中 黃至偉 HUANG, CHIH WEI ;賴朝松 LAI, CHAO SUNG ;彭興淦 PENG, HSING KAN ;李中元 LEE, CHUNG YUAN ;林瑄智 LIN, SHIAN JYH

16 2009/6/16 96147438 發明 奈米晶記憶體及其製造方法 公告中 方友清 ;徐立 ;賴朝松 ;王惠君 ;王哲騏 ;翁健益

17 2009/8/1 98110025 發明 氮化鎵製程氧化低密度脂蛋白感測元件 公告中 邱顯欽 ;賴朝松 ;洪秉杉 ;林朝瑋 ;周淑娥 ;林瑞明 ;林永翔 ;黃新舜

18 2010/1/11 96131858 發明 檢測用環型密封墊裝置 I319470 賴朝松 LAI, CHAO SUNG

19 2010/2/1 97128759 發明 半導體元件結構及其製程 公告中 "林瑄智 LIN, SHIAN JYH;黃至偉 HUANG, CHIH WEI;賴朝松 LAI, CHAO SUNG 彭興淦 PENG, HSING KAN"

20 2010/3/1 97134082 發明 摻雜離子形成具薄膜之基板結構製造方法及其基板結構 公告中 "李天錫 LEE, TIEN HSI; 賴朝松 LAI, CHAO SUNG; 黃敬涵 HUANG, CHING HAN;何嘉哲 HO, CHIA CHE;巫秉融 WU, PING JUNG; 鄭守鈞 JENG, SHOU JIUN"

21 2010/6/16 97146837 發明 半導體元件及其製造方法 公告中 "賴朝松 LAI, CHAO SUNG;方友清 FANG, YU CHING;徐立 HSU, LI;王惠君 WANG, HUI CHUN;鄒百麒 CHOU, PAI CHI"

22 2010/7/16 98100851 發明 離子感測場效電晶體與具有該離子感測場效電晶體的離子感測電極 公告中 "潘同明 ;賴朝松 ;吳旻憲 ;鄭智鴻"

23 2010/11/16 98115542 發明 具有釤鈦氧化物之離子場效電晶體及其離子感測電極 公告中 "潘同明 ;吳旻憲 ;黃名德 ;賴朝松"

24 2010/12/1 98117383 發明 感測場效電晶體裝置 公告中 "賴朝松 LAI, CHAO SUNG;呂承恩 LUE, CHENG EN;楊家銘 YANG, CHIA MING; 王思婕 WANG, SZU CHIEH"

25 2011/2/1 98124259 發明 鐠釹氧化物生化離子感測器 公告中 "潘同明 ;吳旻憲 ;賴朝松 ;李政達"

26 2011/6/1 98140410 發明 具有雙膜差動結構之場效型離子感測裝置 公告中 "賴朝松 ;吳青美 ;呂承恩 ;楊家銘"

27 2011/6/1 98139918 發明 光輔助生化感測器 公告中 "張連璧 ;賴朝松 ;鄭明哲 ;邱顯欽 ;陳柏全 ;陳煜東"

28 2011/9/21 96124893 發明 半導體裝置的製造方法 I349310 "王茂盈 WANG, MAO YING;王哲麒 WANG, JER CHYI;徐薇惠 HSU, WEI HUI;周良賓 CHOU, LIANG PIN;蘇國輝 SU, KUO HUI;吳昌榮 WU, CHANG RONG;賴朝松 LAI, CHAO SUNG"

29 2009/5/26 098117383 發明 感測場效電晶體裝置 申請中 賴朝松,呂承恩,楊家銘,王思婕

30 2009/11/20 12/591,466 發明 感測場效電晶體裝置 申請中 賴朝松,呂承恩,楊家銘,王思婕

31 2009/11/26 098140410 發明 具有雙膜差動結構之場效型離子感測裝置 申請中 賴朝松,吳青美,呂承恩,楊家銘

32 2010/10/29 99137205 發明 一種透明導電薄膜之表面處理方法及其結構 申請中 賴朝松等人

33 2010/10/29 99137200 發明 一種智慧型定線速雙面捲繞式傳輸裝置 申請中 賴朝松等人

34 2010/10/29 99137203 發明 一種具結晶重新排列之透明導電薄膜及其形成方法 申請中