

PROCESS ENGINEERING INTERN

Profile

PhD cleanroom expert looking for an opportunity to work as a full-time module/process engineer in Lam Research Experience working in both a research cleanroom facility and a semiconductor fab. Hands on experience with fabrication methods such as plasma etching, photolithography, wet etch processing, and PVD Well understanding of Statistical Process Control (SPC) and Design of Experiments (DOE)

Professional Experience

Process Engineering Intern

June 2014 to August 2014 Company Name 1/4 City, State

- Worked on short-loop study for qualifying new metal etch platform Performed edge exclusion standardization for measurement tools in Etch/CMP/Wet Etch area Wrote "Klarity ACE" recipes to provide scheduled/automated reports for inline parameters capability, tool-tool (chamber-chamber) matching, and PT-Inline cross-correlations for plasma etch module engineers Generated internal documentation for sampling plans in Etch/CMP/ Wet Etch area Academic Cleanroom Experience Washington Nanofabrication Facility, UNIVERSITY OF WASHINGTON.

Research Assistant

January 2008 to Current City, State

- Project: "A NEW INTEGRATED ENDOSCOPE SYSTEM" Developed a full MEMS fabrication process of a mechanical resonance based scanning device.
- Integrated with Laser and fiber optics to enable in 2D micro-displays scanning system Setup benchtop spin coater (SCS 6800) and sputter (Denton Desk V) in lab.

Graduate Researcher

January 2003 to January 2005 Company Name 1/4 City

Education

Ph. D : Mechanical Engineering , April, 2015 University of Washington 1/4 City, State GPA: GPA: 3.52 / 4.0 Mechanical Engineering GPA: 3.52 / 4.0 Dissertation: "Design and Fabrication of Mechanical Resonance Based Scanning Endoscope"

M. S : Bio-Industrial Mechatronics Engineering , 2006 National Taiwan University 1/4 City, Taiwan GPA: GPA: 3.9 / 4.0 Bio-Industrial Mechatronics Engineering GPA: 3.9 / 4.0 Thesis: "Integration and Fabrication of 2D Phononic Crystals and Surface Acoustic Wave Micro Device"

B. S : Mechanical Engineering , 2003 National Central University Taiwan Mechanical Engineering

Affiliations

National Society of Professional Engineers (NSPE)

Accomplishments

- Design, Experimental, and Analysis Investigation of Novel Micromachined Phononic Crystals- Development of High-Frequency Surface Acoustic Waveguides" Micro-fabricated MEMS phononic crystals, integrated with surface acoustic wave (SAW) micro devices on silicon wafers Related Class Projects Process Flow and Device Mask Design for an N-MOS Transistor" EE527 "Solid-State Lab Techniques" final project Designed both CAD layout and a completed fabrication flow of an n-MOS transistor Cross-Sectional Influence on FinFET Characteristics" EE539A "Semiconductor Devices" final project Discussed basic device physics of FinFETs, compared FinFETs and competing UTB-SOI technology Simulated cross-sectional influences on the characteristics of FinFETs using SILVACO Atlas Experiment Study on Internal Stress in SU-8 Photoresist Cantilever Structure" ME561 "Thin Films" final project Calculate the value of the residual stress in SU-8 Photoresist due to the difference of coefficient of thermal expansion (CTE) mismatch between film and substrate Optimized process recipes (PEB temperature/duration) to reduce photoresist cracking/delamination/buckling due to residue stress Tool Proficiency Photolithography: mask writer (Heidelberg μ PG 101), Aligner (Karl Suss MA6, ABM, & EVG 620), Spin coater (SCS SCS 6800 series, & Headway PWM32), HMDS oven (Yield Engineering Systems), wet bench Dry Etch: RIE (Trion Phantom RIE & Advanced Vacuum Vision RIE), Deep RIE (STS Multiplex & Oxford Instruments Plasmalab 100 ICP-380) PVD: Sputter (Kurt J. Lesker Lab 18, & Denton Desk V), e-beam evaporator, thermal evaporator Metrology: SEM (FEI Sirion & JEOL JSM-7400F), Optical profiler (Veeco Wyko NT Series), profilometer (KLA Tencor P-15 & Alphasteps), nanospec (Nanometrics) Others: Wet process (Piranha, RCA Clean, HF/BOE), Cu plating, CMP, furnace (annealing/sintering/oxidation).

Publications

Gu, Kebin, Chi-June Lee, Chun-Wei Wu, Chih-Hsuan Chien, and Wei-Chih Wang. "A 2D piezoelectric actuated scanning image acquisition." In SPIE Smart Structures and Materials+ Nondestructive Evaluation and Health Monitoring, pp. 86952F-86952F. International Society for Optics and Photonics, 2013. Wang, Wei-Chih, William Soetanto, and Kebin Gu. "Fiberoptic microphone using a polymeric cavity." In SPIE Smart Structures and Materials+ Nondestructive Evaluation and Health Monitoring, pp. 79842B-79842B. International Society for Optics and Photonics, 2011. Gu, Kebin, C-C. Lee, W. Cui, M. Wu, and W-C. Wang. "Design and fabrication of mechanical resonance based scanning endoscope." In Solid-State Sensors, Actuators and Microsystems Conference (TRANSDUCERS), 2011 16th International, pp. 1574-1577. IEEE, 2011. Gu, Kebin, C-L. Chang, J-C. Shieh, and W-P. Shih. "Design and fabrication of 2d phononic crystals in surface acoustic wave micro devices." In Micro Electro Mechanical Systems, 2006. MEMS 2006 Istanbul. 19th IEEE International Conference on, pp. 686-689. IEEE, 2006. Thesis: Design And Fabrication of 2D Phononic Crystals in Surface Acoustic Wave Micro Device Thesis: Design And Fabrication of 2D Phononic Crystals in Surface Acoustic Wave Micro Device Dissertation: Design and Fabrication of Mechanical Resonance Based Scanning Endoscope Dissertation: Design and Fabrication of Mechanical Resonance Based Scanning Endoscope

Skills

Academic, documentation, edge, fiber optics, Laser, Mechanical, Scanning