LABORATORY CO., LTD.

IPR2013-00068

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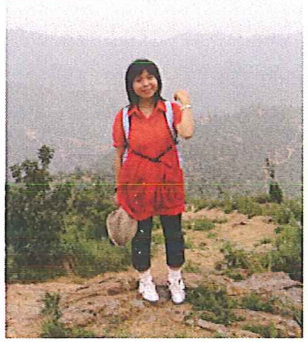
Education

Ph.D. Electrical Engineering, Carnegie Mellon University, USA 1987
M.S. Electrical Engineering, State University of New York at Buffalo, USA 1984
B.S. Physics, Aristotle University of Thessalonia, Greece 1982

Biography

My CV

Professor Miltiadis Hatalis received the B.S. degree in Physics from Aristotle University of Thessaloniki, Thessaloniki, Greece, in 1982, the M.S. degree in Electrical and Cmputer Egineering from the State University of New York at Buffalo in 1984, and the Ph.D. degree in Electrical and Computer Engineering from Carnegie Mellon University, Pittsburgh, PA, in 1987. He joined the Department of Electrical and Computer Engineering of Lehigh University, Bethlehem, PA, in 1987 as an Assistant Professor and was promoted to Associate Professor in 1991 and to Professor in 1995. In 1992, he was a Visiting Scientist at XEROX Palo Alto Research Center. He is the author or coauthor of over 150 technical publications in the field of Polysilicon Thin-Film Transistor Technology. His research interests are in electronic thin film materials, devices and circuits for flat panel displays, and integrated Microsystems on variety of rigid and flexible platforms including silicon, glass, flexible metal foil, and plastic. Dr. Hatalis served as Chairman of the organization committee for five technical workshops and conferences in the field of flat panel displays and systems.



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Ph.D. Candidate

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Education

Ph.D. Candidate, Electrical Engineering, Lehigh University, USA
M.S. Electrical Engineering, Lehigh University, USA 2009
B.S. Material Science & Engineering, Shanghai Jiao Tong University, China 2007

Biography

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M.S. Student

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Biography

Devry Institute - Electrical Engineering
Desales University and Lehigh University - Additional Studies
Perkin Elmer/ ASML - Field Service and Support Engineer
Lucent Technologies - Photolithography Engineer

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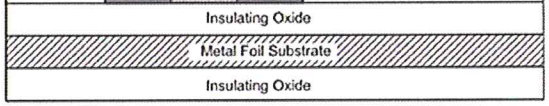
Developing Tomorrow's Technology Today

With the goal to realize high-performance electronic systems on flexible platform this group pursuits design and development of devices, circuits and very large scale integrated systems on stainless steel foil substrate mainly employing polysilicon Thin Film Transistor (TFT) technology. In contrast with plastic substrates, metal foils can withstand high-temperature steps such as thermal oxide growth, thermal dopant activation, silicidation etc. Furthermore, the superior dimensional stability of metal foil substrates permits the implementation of rather small features (<1μm) over a large area. This makes the development of highly integrated, high performance CMOS electronics on flexible, large area platform possible. Our efforts cover the following aspects:

- Preparation of flexible metal foil substrates
- Design, simulation, and fabrication of application specific solid state devices (including TFT, pin Diode, OLED, etc.)
- Design, simulation, and fabrication of standalone circuits, application specific integrated circuits and systems with novel technologies (including poly-Si TFT, Oxide-TFT, and etc.)
- Development of characterization and testing setup for highly customized large area integrated systems.
- Encapsulation of air or humidity sensitive electronic systems

Following are some of our projects

- AMOLED display on flexible metal foil substrate
- Integrated analog, digital and mixed signal circuits on stainless steel foil
- Large Area Flexible Digital Systems on Flexible Platform
- Low Temperature Metal-Oxide TFTs for display and sensor applications
- Evaluation of TFT electronics on flexible platform under mechanical strain
- Assessment of various metal foils for flexible electronic applications
- Reverse stamped printed electronics



Crystallization

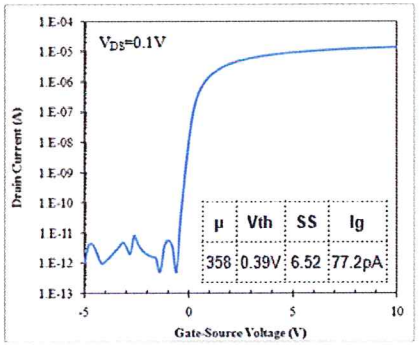
SPC – Solid Phase Crystallization

SLS – Sequential Lateral Solidification

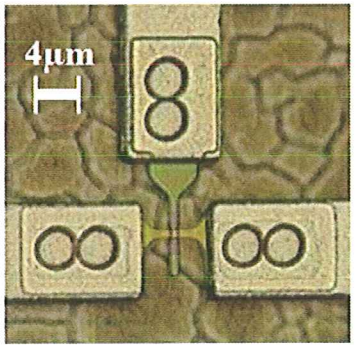
	SPC		SLS	
Mobility ($cm^2/V.s$)	n-type	p-type	n-type	p-type
	30-60	20-30	150-400	100-150

Excellent Line Fidelity

n-type SLS p-Si TFT with Channel W/L of 1µm/1µm



minimum feature size as small as 1µm



TFT Scalling

DOCKET ALARM

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