
2015 International Conference on Semiconductor Technology for Ultra Large Scale Integrated Circuits and Thin Film Transistors (ULSIC vs. TFT 5)

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Preface

This issue of *ECS Transactions* includes 23 papers that were presented at the Fifth International Conference on Semiconductor Technology for Ultra Large Integrated Circuits and Thin Film Transistors (ULSIC vs. TFT 5), held in Tahoe City, CA, from June 15-18, 2015. This symposium was sponsored by the Engineering Conferences International.

Following the tradition of the last four conferences, this is a forum for the open discussion on the latest progress of the two largest semiconductor technologies - ULSIC and TFT. Global experts from universities, companies, and national laboratories exchanged experience, knowledge, and visions through technical presentations and discussions. Participants and authors were from France, Germany, India, Japan, Korea, Saudi Arabia, Taiwan, UK, and USA.

There were two plenary speeches dedicated to “Solving the Metallization Challenges in Semiconductor Manufacturing” by S. Ramamurthy of Applied Materials Inc. and “Wide band gap semiconductors transistors for power devices and FPD” by E.-S. Nam of ETRI. The conference also included two panel sessions on 1) challenges in oxide applications in IC, displays, etc. and 2) challenges in nano transistors. In total, 43 papers were presented during the following sessions:

- Plenary
- Oxide TFTs
- Memories and materials
- Oxide TFT fabrications
- Etching & Deposition Processes
- Oxide and Si TFTs and GaN
- New Devices
- New Devices Applications
- Posters

In order to present subjects in a coherent manner, papers in this issue of *ECS Transactions* have been arranged into six chapters. All manuscripts are published as originally received, without alteration of technical content, except minor formatting corrections.

The success of this conference is contributed by the following people and organizations:

- Plenary, invited, oral, and poster speakers for presentations and panel discussions
- Session chairs for conducting the meeting
- Scientific advisory committee members for contributions in planning and discussions.
- Dr. N. Li for valuable advice as the conference ECI liaison
- ECI staff for effective management of the conference
- Beth Anne Stuebe of ECS for publishing this *ECS Transactions* volume

Yue Kuo

Texas A&M University

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Facts about ECS

The Electrochemical Society (ECS) is an international, nonprofit, scientific, educational organization founded for the advancement of the theory and practice of electrochemistry, electronics, and allied subjects. The Society was founded in Philadelphia in 1902 and incorporated in 1930. There are currently over 7,000 scientists and engineers from more than 70 countries who hold individual membership; the Society is also supported by more than 100 corporations through Corporate Memberships.

The technical activities of the Society are carried on by Divisions. Sections of the Society have been organized in a number of cities and regions. Major international meetings of the Society are held in the spring and fall of each year. At these meetings, the Divisions and Groups hold general sessions and sponsor symposia on specialized subjects.

The Society has an active publication program that includes the following:

Journal of The Electrochemical Society — (JES) is the leader in the field of electrochemical science and technology. This peer-reviewed journal publishes an average of 550 pages of 85 articles each month. Articles are published online as soon as possible after undergoing the peer-review process. The online version is considered the final version and is fully citable with articles assigned specific page numbers within specific issues. The date of online publication is the official publication date of record.

Journal of Solid State Science and Technology — (JSS) is one of the newest peer-reviewed journals from ECS launched in 2012. JSS covers fundamental and applied areas of solid state science and technology including experimental and theoretical aspects of the chemistry and physics of materials and devices. Articles are published online as soon as possible after undergoing the peer-review process. The online version is considered the final version and is fully citable with articles assigned specific page numbers within specific issues. The date of online publication is the official publication date of record.

Electrochemistry Letters — (EEL) is one of the newest journals from ECS launched in 2012. It is dedicated to the rapid dissemination of peer-reviewed and concise research reports in fundamental and applied areas of electrochemical science and technology. Articles are published online as soon as possible after undergoing the peer-review process. The online version is considered the final version and is fully citable with articles assigned specific page numbers within specific issues. The date of online publication is the official publication date of record.

Solid State Letters — (SSL) is one of the newest journals from ECS launched in 2012. It is dedicated to the rapid dissemination of peer-reviewed and concise research reports in fundamental and applied areas of solid state science and technology. Articles are published online as soon as possible after undergoing the peer-review process. The online version is considered the final version and is fully citable with articles assigned specific page numbers within specific issues. The date of online publication is the official publication date of record.

Electrochemical and Solid-State Letters — (ESL) was the first rapid-publication electronic journal dedicated to covering the leading edge of research and development in the field of solid-state and electrochemical science and technology. ESL was a joint publication of ECS and IEEE Electron Devices Society. Volume 1 began July 1998 and contained six issues, thereafter new volumes began with the January issue and contained 12 issues. The final issue of ESL was Volume 16, Number 6, 2012. Preserved as an archive, ESL has since been replaced by SSL and EEL.

Interface— *Interface* is an authoritative yet accessible publication for those in the field of solid-state and electrochemical science and technology. Published quarterly, this four-color magazine contains technical articles about the latest developments in the field, and presents news and information about and for members of ECS.

ECS Meeting Abstracts— *ECS Meeting Abstracts* contain extended abstracts of the technical papers presented at the ECS biannual meetings and ECS-sponsored meetings. This publication offers a first look into the current research in the field. ECS Meeting Abstracts are freely available to all visitors to the ECS Digital Library.

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