

The Electrochemical Society

## Student Posters (General)

at the 211<sup>th</sup> ECS Meeting

ECS Transactions Volume 6 No.13

May 6-10, 2007  
Chicago, Illinois, USA

Printed from e-media with permission by:

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571  
[www.proceedings.com](http://www.proceedings.com)

ISBN: 978-1-60423-889-1

Some format issues inherent in the e-media version may also appear in this print version.

---

Copyright 2007 by The Electrochemical Society, Inc.  
All rights reserved.

This book has been registered with Copyright Clearance Center, Inc.  
For further information, please contact the Copyright Clearance Center,  
Salem, Massachusetts.

Published by:

The Electrochemical Society, Inc.  
65 South Main Street  
Pennington, New Jersey 08534-2839, USA

Telephone 609.737.1902  
Fax 609.737.2743  
e-mail: [ecs@electrochem.org](mailto:ecs@electrochem.org)  
Web: [www.electrochem.org](http://www.electrochem.org)

ISSN 1938-6737 (online)  
ISSN 1938-5862 (print)

---

Printed in the United States of America.

**ECS Transactions, Volume 6, Issue 13**  
Student Posters (General)

**Table of Contents**

*Preface*

Electrochemical Performance of Coated Titanium Anodes in Concentrated Chromium VI Solutions <i>M. G. Ntunka, A. B. Bryson and I. Cukrowski</i>	1
N719 Dye Adsorption on Anatase TiO <sub>2</sub> Surfaces Investigated by Infrared Absorption Spectroscopy <i>K. Kurabayashi, H. Iwata and F. Hirose</i>	15
Effects of Channel and Crystalline Orientations on the Electron Mobility in MOSFETs Fabricated on (114) and (5 5 12)-Silicon Substrates <i>F. De la Hidalga-W, P. Rosales-Q, A. Torres-J, W. Calleja-A, E. Gutierrez-D and D. Kendall</i>	21
Formation of n and p Regions in (114) and (5 5 12)-Silicon Substrates <i>F. De la Hidalga-W, P. Rosales-Q, A. Torres-J, W. Calleja-A, E. Gutierrez-D and D. Kendall</i>	29
EIS and Microstructural Studies of TiN Coatings Deposited by PVD d.c. Magnetron Sputtering <i>J. A. Hidalgo and C. M. Ocampo</i>	35
The Higher Mobility Fabrication and Study for SiGe Nanowire <i>K. Chang, J. M. Kuo, W. Chao, C. Liang, J. Chan and W. Wu</i>	43
Effect of Relative Humidity on Membrane Degradation Rate and Mechanism in PEM Fuel Cells <i>H. Xu, R. Boroup, E. Brosha, F. Gazon and B. S. Pivovar</i>	51
Modeling of Direct Methanol Fuel Cell Using a Resistive-Capacitive-Inductive Transmission-Line Equivalent Circuit <i>Y. Wang, G. Au, E. Plichta and J. P. Zheng</i>	63
Effects of Electrode Potential, SiCl <sub>4</sub> Concentration, and Electrolysis Duration Period on Si Electrodeposition in a Hydrophobic Room-Temperature Molten Salt <i>Y. Nishimura and Y. Fukunaka</i>	77

Pt-metal Oxide Anode Electrocatalysts for Direct Methanol Fuel Cells <i>M. Scibioh, S. Kim, T. Lim, S. Hong and H. Ha</i>	93
Superconformal Electrodeposition of Silver from a Cyanide-free Bath for on-chip Metallization <i>J. Sun, X. Chen, B. Xie, T. Xiang, J. Chen and G. Chen</i>	111
Author Index	115