



TACT 2011

T.A.C.T. International Thin Films Conference

Taiwan Association for Coating and Thin Film Technology



Nov.20-23, 2011

Howard Beach Resort, Kenting, Taiwan

Organized by

- College of Engineering, National Cheng Kung University
- Taiwan Association for Coatings and Thin Films Technology (TACT)
- Taiwan Vacuum Society (Taiwan-AVS)
- American Vacuum Society (AVS, USA)
- Japan Vacuum Society
- Thin Films Society

Sponsored by

- Ministry of Education of Taiwan
- Ministry of Economic Affairs of Taiwan
- National Science Council of Taiwan
- College of Engineering, National Cheng Kung University
- Materials Research Society Taiwan


[繁體中文](#) [English](#) [Login](#)

Like

52 people like this. Be the first of your friends.

[Overview](#) [News](#) [Symposium](#) [Exhibition](#) [Short Course](#) [Hotel/Free Tours](#) [Registration](#) [Abstract](#) [Manuscript](#) [Committee](#) [Contact Us](#)

Extend the Notification to Presenting Authors of Abstract Acceptance or Rejection to August 5, 2011

Overview

Following its success in 2009, Taiwan Association for Coatings and Thin Films Technology (TACT) is proud to announce TACT 2011 to be held in a famous resort located in Kenting, Pingtung, Taiwan. This biennial conference drew more than 500 attendees in 2009. The Conference is to provide an open forum to discuss the current status of the scientific and technological achievements in coatings and thin films that are of great importance and interest to academic and industry. The conference also provides a stage for most updated information exchanges among scientists and engineers. There will be 6 Symposia including 6 Keynote Speeches and 12 Invited Speeches.

Symposium Topics

- A. Coatings for sustainable energy
- B. Nanostructured and nanocomposite coatings
- C. Optical, optoelectronic and dielectric coatings
- D. Tribological and protective coatings
- E. Biological coatings
- F. General subjects related to thin films and coatings

Keynote Speakers

- Prof. Allan Matthews, Sheffield University (UK)
- Prof. David Ginley, National Renewable Energy Laboratory (USA)
- Prof. Hans Hofsaess, University of Goettingen (Germany)
- Prof. Stan Veprek, Technical University Munich (Germany)
- Prof. Sam Zhang, Nanyang Technological University (Singapore)
- Prof. Yury Gogotsi Drexel University (USA)

Invited Speakers

There will be 12 invited speakers from EU (3), USA (%), and Asia (4).

Chairpersons

- ◆ **Prof. Li-Chyong Chen**
-- National Taiwan University (Taiwan)
- ◆ **Prof. Jen-Min Chen**
-- Lanzhou Institute of Chemical Physics of the Chinese Academy of Sciences (China)
- ◆ **Prof. Joseph E. Greene**
-- University of Illinois (USA)
- ◆ **Chair Prof. Jow-Lay Huang**
-- National Cheng Kung University (Taiwan)
- ◆ **Prof. Koichi Okamoto**
-- Kyushu University (Japan)
- ◆ **Prof. Hyung-Ho Park**
-- Yonsei University (Korea)
- ◆ **Prof. Stan Veprek**
-- Technical University Munich (Germany)
- ◆ **Prof. Sam Zhang**
-- Nanyang Technological University (Singapore)

Due to the success and large turnout in 2009, more participants are expected. As a result, this year the accepted manuscripts will be published in Thin Solid Films and Surface & Coatings Technology.

Organized by

[NCKU College of Engineering](#)




[Center for Micro/Nano Science and Technology](#)



[Taiwan Association for Coating and Thin Film Technology \(TACT\)](#)

Important Dates

June 20, 2011	Abstract submission
August 05, 2011	Notification to Presenting Authors of Abstract Acceptance or Rejection  Extend
Sep.20, 2011	Early Bird Registration
Sep.20, 2011	Full Paper Manuscript Submission
Feb.20, 2012	Notification to presenting authors of full manuscript acceptance or reject

The Howard Beach Resort is located at the Kenting National Park along with the beautiful ocean coast. Kenting's climate and natural resources provide a unique environment with full of intriguing coral reefs and the best environment for tropical floras and faunas to proliferate. A tourist delight rich with natural and cultural offerings, Kenting beckons with its particular tropical warmth and

Nov. 20, 2011, Sunday

- 09:00 - 17:00 Short Course
- 16:00 - 20:30 Registration
- 18:30 - 20:30 Reception – *Banquet Hall*

Nov. 21, 2011, Monday

- 07:30 - 16:30 Registration
- 08:15 - 10:00 Opening Remark / Keynote Speech
- 10:45 - 17:45 Conference Session

Mon AM (Nov. 21)	Opening Remark / Keynote Speech (Conference Room: Banquet Hall)		
08:15-08:30	President Jow-Lay Huang		Opening Remark
08:30-09:15	Prof. Allan Matthews <i>(Keynote)</i> (Chair: Joe Greene)	Sheffield University UK	Optimising Tribo-contact Performance Using Plasma-based Surface Engineering Processes
09:15-10:00	Prof. David Ginley <i>(Keynote)</i> (Chair: Li-Chyong Chen)	National Renewable Energy Laboratory, USA	Thin Film PV Challenges for Terawatt Production - Emerging Technologies
10:00-10:45	Group Photos / Session Break		
Mon AM (Nov. 21)	Symposium C: Optical, optoelectronic and dielectric coatings		
	<i>Session Chair: Zhe Chuan Feng</i>		Conference Room: Banquet Hall I
10:45-11:15	Prof. Chuan-Pu Liu <i>(Invited)</i>	National Cheng Kung University Taiwan	Optoelectronic and Magnetic Properties of ZnO Thin Films Doped by Cu
11:15-11:30	Heng-Yu Chou	National Cheng Kung University Taiwan	High Throughput Screening of Ta-Si-N Metal Gate for the Advanced Gate Stack
11:30-11:45	Li-Chih Liu	National Cheng Kung University Taiwan	The Influence of Zn/Sn Molar Ratio on Electrical Performance for Solution-Processed Zinc-Tin Oxide Thin-Film Transistors
11:45-12:00	Yun-Shiuan Li	National Taiwan University Taiwan	Permeation Properties of Single-Layer SiO _x N _y C _z Thin Films
12:00-12:15	C. H. Chang	National Taiwan University of Science and Technology, Taiwan	Characterization of Hydrogenated Silicon Germanium Thin Films Prepared by RF Magnetron Sputtering
12:30-13:30	Lunch Break		
Mon PM (Nov. 21)	Symposium C: Optical, optoelectronic and dielectric coatings		
	<i>Session Chair: Chuan-Pu Liu</i>		Conference Room: Banquet Hall I
13:30-14:00	Prof. Zhe Chuan Feng <i>(Invited)</i>	National Taiwan University Taiwan	Dual Wavelength InGaN/GaN Multiple Quantum Well Light Emitting Diodes: Metalorganic Chemical Vapor Deposition and Optical/Structural Properties
14:00-14:15	Jian-Zhang Chen	National Taiwan University Taiwan	Positive and Negative Gate-Bias Stability of the Mg _{0.05} Zn _{0.95} O Thin Film Transistor at Various Temperatures
14:15-14:30	Tsung-Ming Tsai	National Sun Yat-Sen University Taiwan	Bipolar Resistive Switching in Ni-doped SiO ₂ for RRAM applications
14:30-14:45	Sun Gyu Choi	Yonsei University Korea	Resistive Switching Properties of Trivalent Cation Substituted Perovskite Manganite Films
14:45-15:00	Hong-Sub Lee	Yonsei University Korea	Resistive Switching Property of Pr _{0.7} Ca _{0.3} MnO ₃ with Buffer Layer Structure
15:00-15:15	Yu-Ting Tsai	National Chiao Tung University Taiwan	Effect of Top Electrode Material on Resistive Switching Characteristics in MnO ₂ Nonvolatile Memory Devices
15:15-15:30	Hock Jin Quah	Universiti Sains Malaysia Malaysia	Effects of Film Thickness and Post-Deposition Annealing Temperature on the Physical and Electrical Properties of Y ₂ O ₃ Thin Films
15:30-16:00	Session Break		
Mon PM (Nov. 21)	Symposium C: Optical, optoelectronic and dielectric coatings		
	<i>Session Chair: Tsung-Ming Tsai</i>		Conference Room: Banquet Hall I
16:00-16:30	Prof. Chaojing Lu <i>(Invited)</i>	Qingdao University China	Oriented Growth and Electrical Anisotropy of Sol-Gel Derived Ferroelectric Thin Films of Bi-Layered Perovskite Grown on Pt/Ti/SiO ₂ /Si
16:30-16:45	Ivoyl P. Koutsaroff	Murata Manufacturing Co., Ltd. Japan	Structural and Dielectric Properties of Alkaline Earth Titanium Oxynitride Perovskite Thin Films Prepared by RF Magnetron Reactive Sputtering
16:45-17:00	Kou-Chen Liu	Chang Gung University Taiwan	Optimal Indium-Zinc Oxide Transparent Cathode By DC and RF Sputtering Condition for Full transparent Organic Light-Emitting Diode

Structural and Dielectric Properties of Alkaline Earth Titanium Oxynitride Perovskite Thin Films prepared by RF Magnetron Reactive Sputtering

Ivoyl P. Koutsaroff^{1†‡}, Akira Ando¹, Hiroshi Takagi¹, Shin'ichi Higai¹, and Hideharu Ieki¹
¹Murata Manufacturing Co., Ltd., 1-10-1 Higashikoutari, Nagaokakyoshi, Kyoto 617-8555, Japan

Barium strontium titanate (Ba, Sr)TiO₃ (BST) thin films have been widely investigated for both high density capacitor applications and tunable capacitor applications due to their high dielectric constant and large dielectric tunability. BST films with intrinsically low dielectric losses, high dielectric constants ($\epsilon > 800$) and low leakage currents have not been concurrently achieved from polycrystalline thin films (<150 nm) deposited at moderate temperatures (e.g., below 600°C). In the present study we utilize one-axis-oriented polycrystalline perovskite oxynitride thin films of ABO_{3- δ - γ} N _{γ} (A=Ba, Sr, etc., B=Ti, etc.), deposited by RF reactive magnetron sputtering from compound ceramic targets on various substrates covered by Pt bottom electrodes.

The changes in the relative dielectric constant ϵ of a BST thin films and its voltage tunability were systematically scrutinized by variation of selected deposition parameters, such as: oxygen partial pressure, N₂ flow rate and deposition temperature during the film growth, while keeping the remaining parameters, such as: sputtering pressure, film thickness, substrate material, etc. unchanged. We found out that under appropriate deposition conditions it is possible to achieve a noticeable increase of the dielectric constant and a significant enhancement in the voltage tunability for the alkaline earth ABO_{3- δ - γ} N _{γ} oxynitride perovskite films, accompanied by concurrent expansion of the pseudo-cubic lattice constants and lattice tetragonality (c/a) ratios. It was also confirmed that all films with enhanced dielectric constant continue to have near-zero remnant polarization obtained from Pt/ABO_{3- δ - γ} N _{γ} /Pt capacitor structures for the perovskite films grown with tetragonality ratio, c/a > 1.01-1.05 or higher. The presence of structural distortions from cubic(Pm3m) to pseudo-tetragonal cells of ABO_{3- δ - γ} N _{γ} was confirmed for all types of substrates used for the perovskite film growth. We provide experimental evidence that the anionic substitution can induce structural distortions in nonpolar perovskites during the polycrystalline film growth, while ABO_{3- δ - γ} N _{γ} perovskite films remain in paraelectric state at room temperature, their dielectric constant and voltage tunability can be enhanced more than 2-3 times compare to ABO_{3- δ} films grown at the same temperatures, while dielectric losses remained at low levels even with very high dc electric fields.

[†] Presenter: Ivoyl P. Koutsaroff

[‡] Corresponding author: Ivoyl P. Koutsaroff, E-mail: ivo_kutsuro@murata.co.jp

TACT2011 International Thin Films Conference, November 20-23, 2011, Kenting, Taiwan.