



# **NSF Opportunities for International Collaboration In Nano Mechanics & Materials**

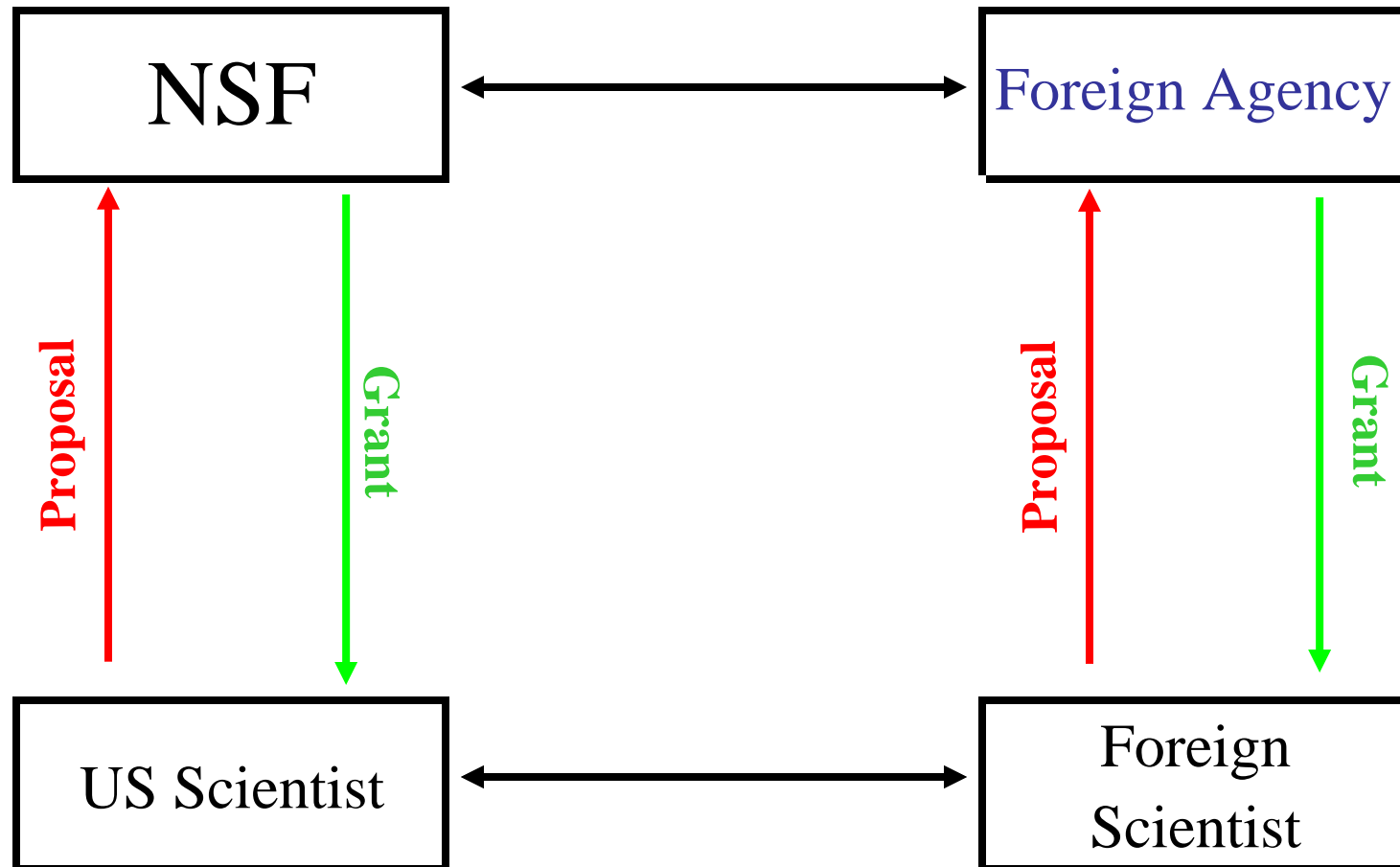
***Ken P. Chong***, PhD, PE

Engineering Advisor, and

Program Director, Mechanics & Materials

Engineering Directorate

# How Does the Collaboration Work?



# **US-Japan Cooperation in Nanotechnology Area**

Summary, July 2007

## **Representatives**

### **US-side**

**Dr. Mihail C. Roco (Senior Advisor, NSF)**

**Dr. Ken P. Chong, PhD., PE (Engineering Advisor, and Program  
Director of Mechanics & Structures of Materials, NSF)**

### **Japan-side**

**Prof. Teruo Kishii (Director Japan Nano Network);**

**Toru. Sato (Director of the Office for Materials Research and  
Development of Basic, MEXT)**

**Minoru Yonekura, Norio Ojima (Deputy Director, Nanotechnology  
Researchers Network Center of Japan)**

## A. US-Japan Symposium for Nanotechnology

	<i>Date, host country</i>	<i>Nanoscale Science and Engineering Topic</i>	<i>U.S. Academic Organizer</i>	<i>Japan Academic Organizer</i>
1st	January 21-24, '03, US	Instrumentation for nanotechnology	Prof. Sandip Tiwari (Cornel Univ.)	Prof. Hiroshi Tokumoto (Hokkaido Univ.)
2nd	October 9-11, '03, Japan	Nanobiotechnology	Prof. Mauro Ferrari (Ohio State Univ.)	Prof. Kazunori Kataoka (Univ. Tokyo)
3rd	January 12-14, '04, US	Selfassembling in nanotechnology	Prof. Matthew Tirrell (UCSB)	Prof. Masatsugu Shimomura (Hokkaido Univ.)
4th	October 25-27, '04, Japan	Nanoscale photonics	Prof. Axel Scherer (California Institute of Technology)	Prof. Motoichi Ohtsu (Univ. Tokyo)
5th	September 12-13, '05, US	Carbon nanotube and its applications	Prof. Yoshio Nishi and Prof. Hongjie Dai (Stanford Univ.)	Prof. Hisanori Shinohara (Nagoya Univ.)
6th	October 10-12, '06, Japan	Nano systems	Prof. Alex Zettl (UC-Berkeley)	Prof. Hiroyuki Fujita (Univ. Tokyo)
7th	October, 2007, US	Nanotechnology: Fuel cell and related technologies	Prof. Bob Savinell (Case Western Reserve Univ.)	Prof. Masahiro Watanabe (Yamanashi Univ.)

## B. US-Japan Young Researchers Exchange Program for Nanotechnology

	<i>Date, host country</i>	<i>Nanoscale Science and Eng'g Topic</i>	<i>U.S. Academic Organizer</i>	<i>Japan Academic Organizer</i>
1 <sup>st</sup>	September 25-October 2, '03, US November 5-13, '03, Japan	Nanomaterials for Catalysis	Prof. Arijit Bose (Univ. of Rhode Island)	Prof. Sukekatsu Ushioda (Tohoku Univ.) ; Prof. Susumu Komiyama (Univ. Tokyo)
2 <sup>nd</sup>	March 7-16, '05, US December 7-17, '05, Japan	Nanobiotechnology	Samuel L. Stupp (Northwestern Univ.)	Prof. Masaru Tsukada (Waseda Univ.); Prof. Atsushi Ikai (Tokyo Institute of Technology)
3 <sup>rd</sup>	March 6-17, '06, US October 28-November 7, '06, Japan	Nano manufacturing and nanotechnology	Prof. Julie Chen (Univ. of Massachusetts, Lowell)	Prof. Yoshinobu Aoyagi (Tokyo Institute of Technology); Prof. Kazuhito Furuya (Tokyo Institute of Technology)
4 <sup>th</sup>	March, 2007, US September, 2007, Japan	3-D Measurements & Visualization at Nanoscale	Prof. Robert Hocken (Univ. of North Carolina)	Prof. Satoshi Kiyono (Tohoku Univ.); Associate Prof. Wei Gao (Tohoku Univ.)
5 <sup>th</sup>	March, 2008, US September 2008, Japan	Nano-mechanics related active systems	Prof. Chad Mirkin - tentative (Northwestern Univ.)	Prof. Yasuhiro Horiike (NIMS- National Institute for Materials Science)



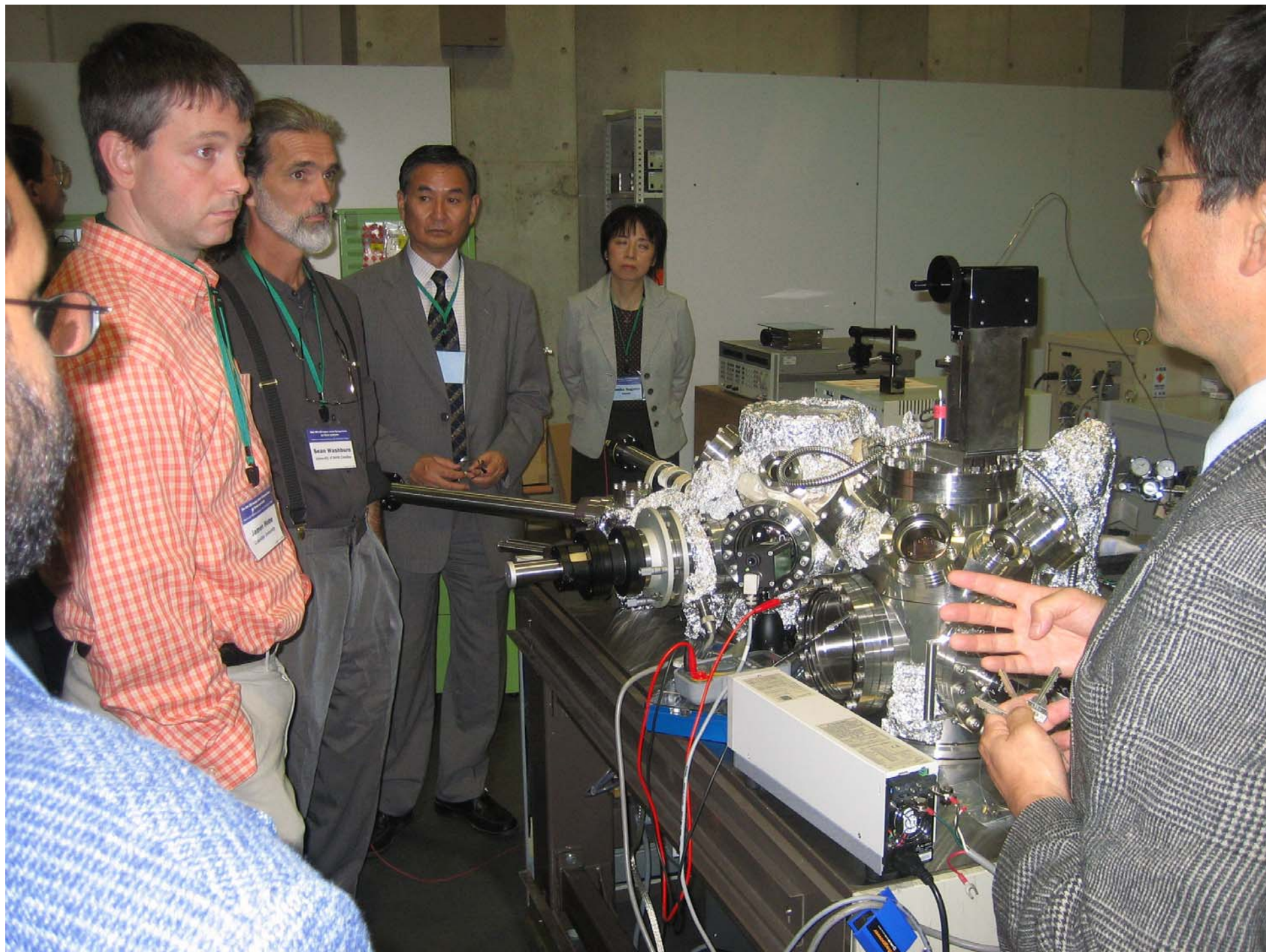
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Nanotechnology Research Center

ナノテクノロジー研究センター  
ナノテクノロジー研究棟  
ナノテクノロジー研究棟  
ナノテクノロジー研究棟

ハイテクリサーチセンター  
ナノテクノロジー研究棟  
COE(分子ナノ工学)  
研究拠点







# The US-China NSF Workshop and Summer Institute of Bio- and Nano-Mechanics and Applications (UCWSI2007)

August 31 – September 4, 2007 in Beijing, China

*Co-organized by Tsinghua University and Dalian University of  
Technology, and University of Missouri-Columbia and UIUC*

website: <http://www.cstam.org.cn/show.asp?unid=2006052241>



## Dalian University of Technology





# Pan-American Advanced Studies Institute (PASI) on Nano and Biotechnology

*November 13-22, 2006, San Carlos de Bariloche, Argentina*

## **Steering Committee**

**Horacio D. Espinosa (Principal Investigador, Director)**  
Mechanical Engineering, Northwestern University, Evanston, IL  
**Glaucio Paulino (Co-Director)**  
Civil Engineering, University of Illinois, Urbana-Champaign, IL

## **International Organizing Committee**

**Carlos Balseiro (Advisor on Nanotechnology)**  
Centro Atomico Bariloche, Argentina  
**Gustavo Buscaglia (Advisor on Nanoscale Computational Modeling)**  
Centro Atomico Bariloche, Argentina  
**Alex Fainstein (Advisor on Optical Properties of Semiconductor Nanostructures)**  
Centro Atomico Bariloche, Argentina  
**Chad Mirkin (Advisor on Nano and Biotechnology)**  
Chemistry, Northwestern University, Evanston, IL  
**Subrata Mukherjee (Advisor on NEMS)**  
Dept. of Theoretical and Applied Mechanics, Cornell University, Ithaca, NY  
**Hernan Pastoriza (Advisor on MEMS)**  
Centro Atomico Bariloche, Argentina  
**Fernando Alves Rochinha (Advisor on Parallel Computation)**  
Federal University of Rio de Janeiro/COPPE, Rio de Janeiro, R.J., Brazil  
**Sam Stupp (Advisor on Self Assembly and Biotechnology)**  
Materials Science, Northwestern University, Evanston, IL



# Pan-American Advanced Studies Institute (PASI) on Nano and Biotechnology

November 13-22, 2006, San Carlos de Bariloche, Argentina

## Program

### Day 1 (11/13):

**8:30-9:00** Opening Ceremony (H. D. Espinosa, G. Buscaglia, G. Paulino)

**9:00-10:30 L1:** Self-Assembled Monolayers and Applications  
(R. Salvarezza)

**10:30-11:00** coffee break

**11:00-12:00 L1:** Self-Assembled Monolayers and Applications  
(R. Salvarezza)

**12:00-1:00** lunch break

**1:00-2:30 L2:** Nanostructured multilayers of redox polymers and enzymes for molecular recognition and electrical signal generation (E. Calvo)

**2:30-3:00** coffee break

**3:00-5:30 L3:** Electronic Structure Calculations and Applications (Schatz)

### Day 2 (11/14):

**8:30-10:30 L4:** Biological Nanomechanics (R. Phillips)

**10:30-11:00** coffee break

**11:00-12:00 L5:** Disease Detection and Treatment (W. Soboyejo)

**12:00-1:00** lunch break

**1:00-2:00 L5:** Disease Detection and Treatment (W. Soboyejo)

**2:00-3:00 L6:** Atomistic Modeling of DNA and Protein Structure (Schatz)

**3:00-3:30** coffee break

**3:30-5:00 L6:** Atomistic Modeling of DNA and Protein Structure (Schatz)





**Second Announcement**

**Second GEM<sup>4</sup> Summer School on**

**CELL AND MOLECULAR  
MECHANICS  
IN BIOMEDICINE**

**with a focus on Cancer**



**(in conjunction with the GEM<sup>4</sup>  
Conference on Cancer 2007)**

**June 25 - July 6, 2007  
National University of Singapore**

**[www.gem4.org](http://www.gem4.org)**

**Supported by**  
Office of Life Sciences  
NUS Graduate School for Integrative Sciences and Engineering

**Sponsored by**  
Microlambda Pte Ltd  
Nikon Pte Ltd

Summer school website: [www.gem4.org/summerschool2007](http://www.gem4.org/summerschool2007)  
GEM<sup>4</sup> Conference on Cancer website: <http://www.gem4.org/cancer2007>



**07**



# **NSF Program Director**

## **Dr. K. Jimmy Hsia** (Nano and Bio Mechanics Program)

**Visiting  
NRF & NUS  
in Singapore  
June 2007**







US-Japan Young Researcher Exchange Program in  
Nanomanufacturing and Nanotechnology, Tokyo,  
Japan, April 2006 – March 2007

International Workshop on Autonomous Materials and  
Damage Mitigation, Nice, France, May 2006

Fourth US-Japan Young Researcher Exchange  
Program on New instrumentation for Nanoscale  
Structures, Kyoto, Japan, June 2006

World Forum on Smart Materials and Smart Structures  
Technology (SMSST '07), Harbin, China, July 2007

IREE supplement to collaborate with researchers at  
Politecnico di Milano in Italy, 2006-2007

IREE supplement to collaborate with researchers at the  
Institute of Science and Technology in Medicine at  
Keele University in UK, 2006-2007