NANOMXCN
México-China Workshop on NANO Materials / Science / Technology

Highlights of NANOMXCN-TOX 2018

08 March 2018

The first "NANOMXCN Workshop on Nanosafety and Nanotoxicology - 2018 (NANOMXCN-TOX)" took place at the Universidad Autónoma de Aguascalientes (UAA) from 26 Feb. to 01 Mar. 2018. NANOMXCN-TOX was chaired by Dr. Iliana E. Medina, UAA- Mexico and Dr. Bing Yan, Shandong University - PR China and was co-organized by CONACYT's National Laboratory LACAPFEM that is jointly hosted by UAA and Universidad de Guanajuato (UG) (http://bit.ly/2G8ZrgC). NANOMXCN-TOX is part of the NANOMXCN project that seeks greater collaboration opportunities in science and technology between Mexico and China, including Hog Kong, SAR with a growing number of participants more information at www.nanomxcn.com.

Different from previous NANOXMCN events, NANOMXCN-TOX had a focused topic: Nanosafety and Nanotoxicology, and was designed to: i) attract, motivate, and inspire students, ii) engage with industry and entrepreneurs; and iii) promote dialogue among different instances interested in supporting the efforts of NANOMXCN to promote increased Mexico-China collaboration opportunities in science and technology. To this end the workshops included the following elements:

- Postgraduate Fair with participation of 6 institutions from the states of Jalisco, Queretaro, San Luis Potosi, Guanajuato, and Mexico City.
- All participating institutions agreed to allocate academic credits to their Master and PhD students participating in NANOMXCN-TOX.
- There was a visit to the Guanajuato site of LACAPFEM National Laboratory. Importantly the logistic of the visit was fully coordinated by the Student Association of the UAA and was open to all registered participants.
- An introductory and a practical, hands-on, courses on Atomic Force Microscope (AFM) by USA representatives of Bruker including focused sections on industrial applications.

We are grateful for the support to NANOMXCN-TOX of the Institute of Mexicans Abroad (IME by its Spanish acronym) of the Mexican Foreign Relations Ministry (SRE), the Chinese Embassy in Mexico, The Mexican Materials Society, the National Network of State Councils of Science and Technology (REDNACECYT), Mexico's National Laboratory LACAPFEM, and the authorities of the UAA. The following Guests of Honour participated in the opening ceremony:

- Prof. Jesus Ruiz Gallegos, Dean of Centro de Ciencias Básicas, in representation of the President of Universidad Autonoma de Aguascalientes, Dr. Francisco Javier Avelar Gonzalez.
- Prof. José Gonzalo Muñoz Andrade, Head of Chemistry Department, Universidad Autonoma de Aguascalientes.
- Tania Miranda Gonzalez, Director of Finance of the Institute of Mexicans Abroad, Mexican Foreign Relations Ministry (SRE).
- Zhu Hao, Director of the Division Science and Technology of the Embassy of the People's Republic of China in Mexico.
- Dr. Claudia Gutierrez Wing, President of the Mexican Materials Society (MMS),
- Prof. Bing Yang, Shandong University, PR China. NANOMXCN-TOX Co-Chair.
- Dr. Iliana E. Medina Ramirez, Universidad Autonoma de Aguascalientes, NANOMXCN-TOX Chair.
- Dr. Juan Antonio Zapien, Department of Materials Science and Engineering, City University of Hong Kong. HK SAR, PR China. NANOMXCN Lead organizer

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NANOMXCN-TOX had the participation of 50 pre-registered participants that received a certificate of participation endorsed by the Dean of Centro de Ciencias Básicas, UAA. Additional walk-in registered participants increased the total participation to ~90 students.

The meeting was characterized by the dynamic participation of students from undergraduate and graduate levels, strong support and recognition by the participants to the excellent organization efforts of the meeting Chairs, and continues commitment to future events among which it is important to emphasize or co-organize the following events:

- **New Student Chapters of the SMM**. A presentation by the President of the Mexican Materials Society (SMM) was followed by detailed individual discussions with the students representing the states of Queretaro, Aguascalientes, Guanajuato, and San Luis Potosiis expected to lead to the formation of new Student Chapters shortly.
- **NANOMXCN-Hidalgo**. Commitment of Mtro. José Alonso Huerta, President of Mexico's National Network of State Councils of Science and Technology (REDNACECYT), to organize a NANOMXCN event in the Mexican State of Hidalgo in 2018 with the support of the local government and the Scientific and technological Park of Hidalgo to organize a NANOMXNC-topical meeting in 2018.
- **NANOMXCN-Queretaro.** Commitment of Dr. Karen Esquivel Escalante. UAQ, to join efforts with colleagues from CIDETEQ and Cinvestav-Queretaro to organize a NANOMXNC-topical meeting in 2018.
- **Women in Science**. Commitment of Dr. Iliana Medina, UAA, Dr. Andrea de Vizcaya Ruiz, CINVESTAV. México, Dr. Karen Esquivel Escalante. UAQ, and Dr. Carmen González Castillo, UASLP to co-organize a "Women in Science" meeting in Aguascalientes, 20-23 March, 2018.

Clearly, we could not be more pleased with the success of the first NANOMXCN topical-educational event. While organized with limited resources, NANOMXCN-TOX has surpassed our expectations far and wide and has already inspired the organization of similar events elsewhere. We hope that this brief document can be an introduction that adequately reflects the conviction of the NANOMXCN project participants that our objectives reflect both a real need but also a committed human capital with excellent credentials to create and promote opportunities in the short, medium and long terms for improved Mexico - China collaboration opportunities in Nano Materials / Science / Technology.

NANOMXCN-TOX had the financial support of the Mexican Materials Society, the office of the President of the Universidad Autonoma de Aguascalientes, and the Centro de Ciencias Básicas. The important contributions of Bruker Nano Surfaces Division (Mexico and Southwest US), Springer-Nature, and Malvern Panalytical Instruments to the workshop programme is gratefully acknowledged.

The following pages include additional information including the Workshop programme, a graphical summary of the event, and the opening speech by the meeting Chair.

Sincerely,

"Dr. Juan Antonio Zapien" <apjazs@cityu.edu.hk>
City University of Hong Kong, Lead Organizer NANOMXCN

"Dra. Iliana Medina" <iemedina@correo.uaa.mx>
Universidad Autónoma de Aguascalientes, Chair NANOMXCN-TOX 2018

NANOMXCN-TOX *Workshop on Nanosafety and Nanotoxicology* - 2018

NANOMXCN-TOX *Workshop on Nanosafety and Nanotoxicology* - 2018
Universidad Autónoma de Aguascalientes, 26 Feb - 01 Mar, 2018

The enhanced and tailored properties exhibited by engineered nanomaterials (ENMs) enable them as excellent candidates in numerous applications. Although many benefits can be encountered by these ENMs, a sustainable production-use should always be followed to minimize potential, and still not well understood, risks associated with these materials. Numerous environmental regulation agencies are nowadays trying to implement reproducible protocols for the evaluation of the toxicity of these materials, however, many limitations are still encountered. Accordingly, numerous research groups work on the development of *in-vitro* or *in-vivo* strategies for the toxicity evaluation of these materials. The *NANOMXCN Workshop* on Nanosafety and Nanotechnology - 2018 will provide an international forum for close interaction between graduate students and prominent scientist interested in the development of joint collaborations and scientific exchanges to address these issues. The scientific discussions will focus on advanced strategies for the development of standardized and reproducible techniques for the evaluation of the biocompatibility and/or toxicity of ENMs.

Major topics for discussion:

- ENMs characterization
- Mechanisms of nanotoxicity
- Cell or animal-based models for nanotoxicity evaluation
- Routes and potential effects of ENMs exposure
- Occupational exposure to ENMs
- ENMs in the environment
- *In vitro* models used in ENMs toxicity testing
- *In vivo* exposure models used in ENMs toxicity testing.

Organizing Committee

- Iliana E. Medina Ramírez. Universidad Autónoma de Aguascalientes. Mexico **(Chair)**
- Bing Yan. Shandong University, PR China (**Co-Chair)**
- Juan Antonio Zapién. CityU, HK SAR, PR China
- Andrea de Vizcaya Ruiz. CINVESTAV. México.
- Mario Ávila Rodríguez. Universidad de Guanajuato. México

Local Organizing Committee

- Iliana E. Medina Ramírez. Universidad Autónoma de Aguascalientes. México.
- José Gonzalo Muñoz Andrade. Universidad Autónoma de Aguascalientes. México.
- Karen Esquivel Escalante. Universidad Autónoma de Querétaro, México.
- Carmen González Castillo (Universidad Autónoma de San Luis Potosí

International Advisory Committee

- Jiang Guibin, RCEES, CAS, PR China
- Bing Yan. Shandong University, PR China
- Yan Li, Peking University, PR China
- Rafael Vázquez Duhalt. CNyN, UNAM, Mexico

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Sociedad Mexicana de Materiales A.C.
http://www.mrs-Mexico.org.mx

NANOMXCN-TOX *Workshop on Nanosafety and Nanotoxicology* - 2018

- **PLENARY TALK: Prof. Bing Yan, Shandong University, PR China.**
- **TALK: Prof. Mark Weisner, Duke University, USA:** Nanomaterials in the environment (via videoconference).
- **TALK: Prof. De Vizcaya Ruiz,** CINVESTAV Zacatenco: SINANOTOX, *a Mexican research consortium for the development of strategies to regulate the safe use of nanomaterials.*
- **WS1: Facts and Artifacts of ENMs Characterization**. Prof. Antonio Zapien (City University of Hong Kong).
- **WS2: Mechanisms of Nanotoxicity .** Prof. Bing Yan (Shandong University, PR China).
- **WS3*: In vitro- In vivo* models for nanomaterial toxicity testing**. Prof. Andrea De Vizcaya Ruiz (CINVESTAV)
- **WS4: Routes and potential effects of ENMs exposure.** Prof. Carmen González Castillo (UASLP).
- **WS5: Atomic Force Microscopy as a tool to evaluate nanotoxicity.** Dr. John Thornton (Bruker, USA).

Opening Ceremony and Plenary Talk: Auditorium Dr. Pedro de Alba. UAA
Talks and Round-Tables: Auditorium Salazar Negrete, UAA
Poster session and Coffee Break: Ground Floor (esplanade) building 202

Time	***Monday***	***Tuesday***	***Wednesday***	***Thursday***
8:00-9:00	***Opening Ceremony***	*WS2*	*WS4*	*WS5,* ***OR*** *Visit to LACPFEM- Gto*[*]
9:00-10:00	***Plenary Talk Prof. Bing Yan***	*WS2*	*WS4*	*WS5,* ***OR*** *Visit to LACPFEM- Gto*[*]
10:00-11:00	*Coffee Break*	*WS3*	*WS1*	*WS5,* ***OR*** *Visit to LACPFEM- Gto*[*]
11:00-12:00	*Round Table: Cooperation in Science, Technology, and Education*	***Coffee Break***		*CLOSING REMARKS*
12:00-13:00		*WS3*	*WS1*	***Coffee Break***
13:00-14:00	*Dr. Claudia Gutierrez. President of Mexican Materials Society*	*Postgraduate Fair*	*WS4*	
14:00-15:00	*Free time*	*Prof. Mark Weisner Duke Univesity*	*Free time*	
15:00-16:00		*Free time*		
16:00-17:00	*Prof. De Vizcaya Ruizt*	*Malvern Panalytical Instruments Lic. Nadia Rodríguez*	*Springer-Nature Nano-Database*	
17:00-19:00	*Poster Session*	*Social Event*[#]	*Poster Session*	
	Social Event[#]			

[#] *NOTE: Social Event for participants with pre-registration only.*

[*] *NOTE 2: NANOMXCN-TOX is co-organized by CONACYT's "National Laboratory LACAPFEM" which is co-hosted in Aguascalientes and Guanajuato. During the workshop there will be a visit to Guanajuato's LACAPFEM site.*

Participants of the Round Table: Cooperation in Science, Technology, and Education

- Tania Miranda Gonzalez, Director of Finance of the Institute of Mexicans Abroad, Mexican Foreign Relations Ministry (SRE).
- Fernando Macias, Coordinator for Asia and Oceania of the Red Global MX.
- Mtro. José Alonso Huerta, President of Mexico's National Network of State Councils of Science and Technology (REDNACECYT).
- Dr. Juan Antonio Zapien, Department of Materials Science and Engineering, City University of Hong Kong. HK SAR, PR China.
- Alfredo Bonilla, President of Nodo Agusscalientes of the Red Nacionla de Nodos de Mexico.

Institutions that participated in the postgraduate Fair:

- Centro de Investigación y de Estudios Avanzados (CINVESTAV), Zacatenco, Mexico City, Mexico.
- Universidad Autónoma de San Luis Potosi, SLP, Mexico.
- Universidad Autónoma de Querétaro, Mexico.
- Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S. C, Queretaro (CIDETEQ), Queretaro, Mexico.
- Universidad de Guanajuato, Guanajuato, Mexico.
- Universidad de Guadalajara, Jalisco, Mexico.

NANOMXCN-TOX graphical memory:

NANOMXCN-TOX *Workshop on Nanosafety and Nanotoxicology* - 2018

NANOMXCN 26 Feb - 01 Mar, 2018 AGUASCALIENTES

UNIVERSIDAD AUTONOMA DE AGUASCALIENTES

UNIVERSIDAD DE GUANAJUATO

Universidad Nacional Autónoma de México

CityU 香港城市大學 City University of Hong Kong

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NANOMXCN online

NANOMXCN general information (book of abstracts 201 to 2017, etc.) : http://www.nanomxcn.com

NEWS:

- **XinhuaNet**: Chinese, Mexican scientists expect nano technology to tackle environmental pollution http://news.xinhuanet.com/english/2017-08/21/c_136541320.htm?from=singlemessage&isappinstalled=0
- **New China TV**: (Video) How the Chinese Nano technology can help tackle environmental pollution https://www.youtube.com/watch?v=fe62pAcMVIY
- **NOTIMEX.** México y China buscan mayor intercambio científico en nanotecnología: http://www.uniradioinforma.com/noticias/tecnologia/490772/mexico-y-china-buscan-mayor-intercambio-cientifico-en-nanotecnologia.html
- **CNC**: China, Mexico develop NANO tech to tackle pollution. http://en.cncnews.cn/news/v_show/66883_China,_Mexico_develop_NANO_tech_to_tackle_pollution___.shtml
- **China.org.cn**: Chinese, Mexican scientists expect nano technology to tackle environmental pollution. http://www.china.org.cn/world/Off_the_Wire/2017-08/21/content_41444140.htm
- **Mexican Academy of Sciences Bulletin (in Spanish)** "Forum on collaboration strategies AMC - NANOMXCN Mexico-China: NANO Materials / Science / Technology for Renewable Energy & Environmental Remediation" http://www.comunicacion.amc.edu.mx/comunicados/cientificos-mexicanos-y-chinos-buscan-elevar-la-colaboracion-en-las-areas-de-nanociencias-y-nanotecnologia
  See also videos and Photos: http://www.amc.edu.mx/amcen/index.php/forum-mexico-china
- **Chinese Academy of Sciences: NEWSROOM**
  http://english.cas.cn/newsroom/china_research/201708/t20170821_182103.shtml

NANOMXCN en blogs:

- Mexican Embassy in China: 墨中两国科学家深化纳米科学合作
  http://mp.weixin.qq.com/s/tzgrJa0S3AeFsX9C3mSstw
- Tongji University: 墨西哥纳米科研代表团访问我校
  http://news.tongji.edu.cn/classid-9-newsid-53394-t-show.html
- RCEES: 墨西哥纳米材料及技术代表团访问中心
  http://www.rcees.ac.cn/gjjl/hzjl/201612/t20161210_4719534.html
- IRCRE, Xi'an University: http://ircre.xjtu.edu.cn/events.html#L25
- CIMAV: Investigadores de China interesados en desarrollar trabajos de colaboración con el Cimav http://cimav.edu.mx/2017/01/investigadores-de-china-interesados-en-colaborar-con-cimav/

NANOMXCN en twitter: https://twitter.com/hashtag/nanomxcn

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- **UAA:** UAA fue punto de encuentro para fomento de cooperación bilateral México-China en torno a nanoseguridad y nanotoxicología http://www.uaa.mx/rectoria/dcrp/?p=26702
- **LJA**: México y China participaron en el taller de nanoseguridad y nanotoxicología
- http://www.lja.mx/2018/02/mexico-china-participaron-en-taller-nanoseguridad-nanotoxicologia/
- **Institute of Mexicans Abroad**: El Instituto de los Mexicanos en el Exterior participa en Taller NANOMXCN https://www.gob.mx/ime/articulos/el-instituto-de-los-mexicanos-en-el-exterior-participa-en-taller-nanomxcn

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UNIVERSIDAD AUTONOMA
DE AGUASCALIENTES
CENTRO DE CIENCIAS BÁSICAS
Departamento de Química

Welcome Speech to NANOMXCN-TOX-2018

Aguascalientes, 26 Feb 2018

Good morning everybody. Thank you very much for being here so early in a Monday morning.

- Prof. Jesus Ruiz Gallegos, Dean of Centro de Ciencias Básicas, in representation of the President of Universidad Autonoma de Aguascalientes, Dr. Francisco Javier Avelar Gonzalez,
- Prof. José Gonzalo Muñoz Andrade, Head of Chemistry Department,
- Tania Miranda Gonzalez, Director of Finance of the Institute of Mexicans Abroad, Mexican Foreign Relations Ministry (SRE),
- Director Zhu Hao, Director of the Division Science and Technology of the Embassy of the People's Republic of China in Mexico.
- Prof. Bing Yang, Shandong University, PR China
- Dr. Claudia Gutierrez Wing, President of the Mexican Materials Society (MMS),
- Mtro. José Alonso Huerta, President of Mexico's National Network of State Councils of Science and Technology (REDNACECYT),
- Prof. Juan Antonio Zapien, Department of Materials Science and Engineering, City University of Hong Kong. HK SAR, PR China.

Welcome to the 1st workshop on nanosafety and nanosecurity, NANOMXCN 2018. It is a great pleasure to have the participation of many future scientists that today share with us their enthusiasm for learning and give us a hope for a better future. I expect that this platform offers you new opportunities and ideas for academic projects in the near future.

Education is the key for success, and today, distinguished scientist have gathered at this institution to interact with students and transmit their knowledge and delight about science, in particular, nanosafety and nanotoxicology, important fertile fields that offer invaluable and numerous opportunities for professional development.

Independently of the large distance that separate Mexico and China, collaborations between these nations will render benefits and growth for both parties. Although Chinese scientists have walked much longer distance in the development of nanoscience and nanotechnology, they have showed their willingness to cooperate with Mexico for the development of this important field of science. A tangible proof of their will is the presence of Prof. Bing Yan

at this institution as a Co-chair of this event. In spite of their economic and educational development, Chinese scientists have opened their door to Mexican counterpart to offer a valuable cooperation. I will kindly invite all the participants of this forum to increase efforts in this initiative, to keep this important door always open.

It is not my intention to suggest that consolidated collaborations will come easily, but I am convinced that well oriented academic activities will increase the opportunities to achieve our goal. I guess many of you are thinking that collaboration with China seem very remote. Well, I have to confess that I got the same feeling the first time that I was invited to participate in the NANOMXCN project. I heard about the project and something inside myself said, IMPOSSIBLE, but, I got curious, and curiosity kills the cat.

Well, so far I have learned a lot from this experience. I have had the opportunity to interact with senior and young Chinese scientists, all of them with numerous contributions to their field of expertise. Looking at the CVs of many of them, made me wonder if I was in the right place to seek for collaboration; these thoughts took me back to my years as a graduate student. I remember myself being very sad one day for not doing very well at a physical-chemistry exam. My Chinese classmates were very worried about that drastic change in my behavior that came to ask me what was bothering me. I told them that I did not perform very well in my exam, and they look at me calmly and said, do not worry, you only need to study harder for the next exam. Collaborations with Chinese scientist will imply harder work, but it is a challenge and an inspiration.

And all this work is not for us, it is for you. We want to show you other opportunities, places, possibilities. Do not limit yourself. Dream big, but not only dream, think and act to achieve your dreams. As Maud Leonora Menten, whose name is associated with the famous Michaelis-Menten equation in biochemistry. This scientist did not stop her dream of education because of the fact that women were not allowed to do research in Canada. She developed her professional career in other countries such as Germany and the United States.

Last but not least, I would like to acknowledge the support of Universidad Autonoma de Aguascalientes, the Mexican Society of Materials, The SRE, IME, etc. I hope this event will surpass your expectations. Welcome to Aguascalientes.

Prof. Iliana E. Medina Ramírez
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Centro de Ciencias Básicas
Universidad Autónoma de Aguascalientes
MEXICO