

THE UNIVERSITY OF ARIZONA



Gobierno del Estado de Sonora



Amplifying the Voices of Women in STEM

Seminar 2020 | THE UNIVERSITY OF ARIZONA



Amplifying the Voices of Women in STEM Seminar 2020

As the world becomes increasingly connected, the role of science, technology, engineering, and math – also known as STEM – has never been more important. Although women are making significant advances in the workforce, they remain underrepresented in STEM, particularly with regard to leadership positions. Institutions of higher education have a responsibility to not only encourage women to participate in these fields, but also to prepare them to excel.

The 2020 Amplifying the Voices of Women in STEM program, hosted by the University of Arizona, took place during the week of February 3–7 on the Tucson, Arizona campus. Forty-three young women from Sonora, Chihuahua, and Mexico City attended the seminar. These promising undergraduate and graduate students, majoring in STEM fields at their respective universities in Mexico, participated in innovative workshops, lectures, and other activities designed to advance the role of women in STEM. Topics included: leadership methods, teamwork techniques, communication skills, professional development, and interdisciplinary and graduate career opportunities. The 2020 Amplifying the Voices of Women in STEM seminar was sponsored by Consejo Estatal de Ciencia y Tecnología de Sonora (COECYT), with institutional support from the State Government in Sonora, and higher education institutions from this state. Through seminar presentations and experiences, the participants learned unique ideas and perspectives from leaders on the University of Arizona campus who are role models for women in STEM.

Additional support and participation towards the success of the seminar came from the Institute of Innovation and Competitiveness in Chihuahua, UNAM-Tucson and UNAM College of Sciences in Mexico City.

The following pages reflect the collaboration and learning that were strengthened as a result of this experience.





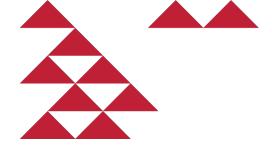
Our Voices Women in STEM Seminar 2020 | THE UNIVERSITY OF ARIZONA

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Women in STEM Seminar student participants from February 2020.





Claudia Pavlovich Arellano Constitutional Governor of the State of Sonora

Governor Claudia Pavlovich was born in Magdalena, Sonora, on June 17, 1969; her parents are Alicia Arellano Tapia, M.D. (former Mayor of Hermosillo and Magdalena, and former Senator) and Miguel Pavlovich Sugich, M.D.

Before going to college, she studied English at the University of Arizona, and French in Montreaux, Switzerland. Thereafter, she attended Universidad de Sonora [University of Sonora], where she graduated and obtained a Bachelor's Degree in Law with an Honorable Mention.

Governor Pavlovich is married to Sergio Torres Ibarra, father of her three daughters – Claudia, Ana and Gabriela; their marriage is what gives Claudia Pavlovich her strength:

She has a comprehensive trajectory in politics and public service. Among her most outstanding appointments, she was a member of Hermosillo City Council from 2000-2003. She was elected as President of the Institutional Revolutionary Party (PRI) in Hermosillo; 2003-2006 and she was a Legislator to the LVIII State Legislature for District XIV (Northeastern Hermosillo); 2006-2009, where she introduced several initiatives regarding family matters.

During 2010 to 2012, she was the first woman to lead as chairwoman the Institutional Revolutionary Party in Sonora. Also she became Federal Senator during 2012 to 2015, where she was appointed as Secretary of the Transportation and Communication Committee.

In 2015, she became the first female governor in Sonora, with a total of 486, 944 votes versus 415, 745 won by her closest competitor. Currently, she is the only female governor in Mexico.

Moreover, Governor Pavlovich has lead Sonora in transparency and accountability initiatives which had made her designated as chair of the Open Government, Transparency and Accountability Committee of the National Governor Conference (CONAGO). Recently, she has also been named as Coordinator of the International Affairs Commission of the same association.

Gov. Pavlovich has an important agenda for economic development, in more than four years, she has knowledgeable results that allow Sonora to engage towards a job growth stability that turns into economic growth over 7.5%. Her favorite quote is "politics serves, only if it serves the people". This vision has guided her political life where service to the people, as well as closeness and results has always being a privilege.







Seminar Agenda

February 3 – 7, 2020 Seminar Director | Dr. Nadia Alvarez Mexia

February 3, 2020

Welcome Breakfast | Kachina Lounge, Student Union

Keynote Speaker | Dr. Tania E. Martínez Cruz "Encounters and Disagreements: Your Inside Voice"

Co-sponsored by Dr. Don Slack and Mexico Initiatives

Panel	"Experiences and Our Voices"
Moderator	Dr. Adrián Arroyo
Panelists	Dr. Martha Civil, Emma Rocio Fajardo,
	Laura Paredes Oldaker, Alma V. Peralta,
	Rosa Maria Rojas and Dr. Adriana Zuñiga
Closing Remarks Mtro. Justin Dutram, Assistant Vice President, Mexico Initiatives, University of Arizona Global	
BIO 5 Tour	

Global Center Lunch Oral and Writing Skills Workshop | Instructor - Dr. Robert Côté Visit to Borderlands Brewing Co.

February 4, 2020

Tree-Ring Lab Tour Worlds of Words Tour Women in Science and Engineering (WISE) Workshop Oral and Writing Skills Workshop Instructor - Dr. Robert Côté

February 5, 2020

Mirror Lab Group Tour Graduate College session Oral and Writing Skills Workshop Instructor - Dr. Robert Côté

February 6, 2020

Tech Parks Visit Women in Science and Engineering (WISE) Oral and Writing Skills Workshop Instructor - Dr. Robert Côté

February 7, 2020

Final presentation | Sonora Room, Student Union

Poster Presentations

Opening Remarks	Mtro. Justin Dutram, Assistant Vice President, Mexico Initiatives
for Higher	Mtro. Onésimo Mariscales Deldagillo, Undersecretary Education, Secretariat of Education and Culture, State
of Sonora	Dr. Antonio Rodríguez Valdez, State Council of Scienc-
es	and Technology, State of Sonora Dr. Enrique F. Velázquez Contreras, Rector, University
of Sonora	
Certificates	Chihuahua Group: Lic. Gerardo Padilla Aguilar Mexico City Group: Dra. Elena Centeno Garcia Sonora Group: Mtro. Onésimo Mariscales, Dr. Enrique
Velázquez	Sonola Group, maro, onesino manscales, pr. Emique
Frias,	Contreras, Lic. Ana Rivas Gaxiola, Lic. Perla Janine
,	Mtro. Ernesto Flores Rivera, Mtro. Ramón López and Lic. Javier Carrizalez Salazar.
Closing Remarks	Dr. Elena Centeno García, National Autonomous University of Mexico, UNAM, Tucson Deputy Consulate Enrique Gómez Montiel, Consulate of Mexico in Tucson
Reception	



Terraforming and Planetary Expansion





Alina Andrea García Huizar

Biomedical Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Alina, a Biomedical Engineering student at UACJ, has worked as a math tutor. Her research interests include biomaterials and tissue engineering. She has received an academic and extracurricular award for her environmental volunteering.

María Fernanda Félix López

Materials Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

María is majoring in Materials Engineering at UACJ. She has special interests in heat treatments and metallurgy. She co-founded the first "Girl Up Campus" in Chihuahua, a United Nations Campaign.



Cindy Rocío Elías López

Industrial Engineering Instituto Tecnológico Superior de Cananea Sonora

Cindy, an Industrial Engineering undergraduate studying at ITSC in Cananea, has a future aspiration to apply her knowledge in the Industrial Engineering field at small or medium companies.

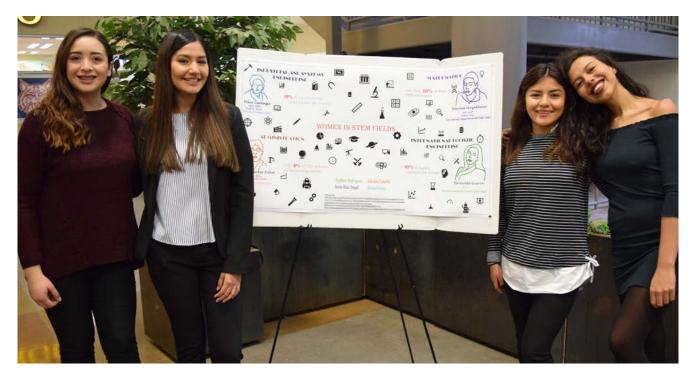
Regina Ortiz Zamora Mathematics

Universidad Nacional Autónoma de México Mexico City

Regina is currently pursuing a double major in Math and Physics at UNAM. She is an activist for climate-related reform, genderabolishment, and science-based public policy.



Women in STEM Fields



Dania Eileen Ochoa Díaz

Industrial & Systems Engineering Instituto Tecnológico de Sonora Sonora

Dania is studying Industrial and Systems Engineering at ITSON. She is interested in the manufacturing field, especially automobiles.

Cynthia Fabiola Rodríguez Hernández International Logistics Engineering Universidad Tecnológica de Ciudad Juárez Chihuahua

Cynthia is a student of International Logistics Engineering at UTCJ, specializing in Tariff Classification. Her research interests are supply chains in multinational companies.

Adriana Karina Cabello Hernández

Masters in Management Universidad Autónoma de Ciudad Juárez Chihuahua

Adriana is studying for a Master's in Business Administration at UACJ. She is interested in researching about international affairs.

Tania Ruiz Segal

Mathematics Universidad Nacional Autónoma de México Mexico City

Tania is a Mathematics major at UNAM. She is certified in human and canine first-aid. She is a feminist, published photographer, highspeed reader, and future dog trainer.





Role of Women in Engineering



Paloma Lagarda Aguilar *Civil Engineering* Universidad de Sonora Sonora

Paloma is majoring in Civil Engineering at Universidad de Sonora. She has special interest in the field of Roads and Transportation. She has participated in several international engineering seminars.

Chelsea Guadalupe Sapiens Mireles *Industrial Maintance Engineering* Universidad Tecnológica de Nogales Sonora

Chelsea is studying Industrial Maintenance Engineering at the Technological University of Nogales (UTN), Sonora. She likes to teach people and participate in different programs related to her career.

María José Peralta Duarte Industrial Engineering Universidad UNILÍDER Sonora

María Peralta is studying Industrial Engineering at UNILIDER in Hermosillo, Sonora. She is interested in topics about astronomy.

Eva Susana Ruíz Valdez Industrial Maintance Engineering Universidad Tecnológica de Nogales Sonora

Susana has a TSU (University Senior Technician) in Industrial Maintenance. She is studying Industrial Maintenance Engineering at Universidad Tecnológica de Nogales. She likes innovation and technology.





Role of Women in STEM



Clara Alejandra Bustamante

Bastida

Business & Management Engineering Instituto Tecnológico Superior de Cananea Sonora

Clara is a Business Management Engineering student focused on business strategies. She is currently in her eighth semester at ITSC. She is interested in International Affairs.

Alyson Jara Franco

Mechatronic Engineering ITESM Campus Sonora Norte Sonora

Alyson, a Mechatronic Engineering student at ITESM, wants to focus on embedded systems or automatization of processes.

Leticia María Araujo Cruz

Industrial & Systems Engineering ITESM Campus Sonora Norte Sonora

Leticia is an Industrial and Systems Engineering student at ITESM. She is interested in the areas of logistics and purchasing, as well as participating in extracurricular activities.

Daniela Judith Angulo Morales

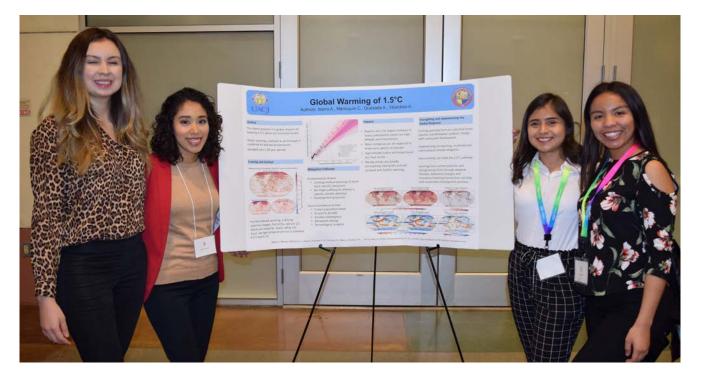
Biomedical Engineering Instituto Tecnológico de Hermosillo Sonora

Daniela is a biomedical engineering student. She is the Director of Development and Sales at Sofia Medical Tech. She is specialized in business, bionics, and programming in the medical field.



Global Warming of 1.5°C





Ana María Villalobos Aguilar Environmental Engineering

Universidad Autónoma de Ciudad Juárez Chihuahua

Ana, an Environmental Engineering student at the Autonomous University of Juarez, is focused on the sustainability of companies by attending leadership seminars, research projects, and lectures.

Ana Paola Quezada Galindo

Biomedical Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Ana, a Biomedical Engineering student at the Autonomous University of Ciudad Juárez, is interested in processing biomedical signals and images as well as design of 3D printing prosthesis.

Alejandra Ibarra Espinoza

ChemicalEngineering Universidad de Sonora Sonora

Alejandra, a Chemical Engineering student at UNISON, has developed projects in the field of nanotechnology. She is focused on biotechnology and has an interest in applied sciences.

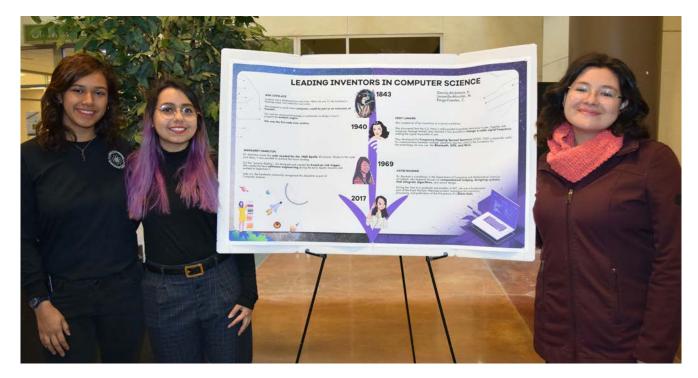
Catherine Marroquín Hernández

Computer Systems Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Catherine is a student in the Computer Systems Engineering program at the Autonomous University of Ciudad Juárez. She has a special interest in cybersecurity and programming websites.



Leading Inventors in Computer Science



Karla Socorro García Alcántara

Computer Science Universidad Nacional Autónoma de México Mexico City

Karla is a computer scientist who teaches first semester students and conducts research about Combinatorial Optimization Heuristics at UNAM in Mexico City.

Irma Carolina Parga Fuentes Physics

Universidad Nacional Autónoma de México Mexico City

Carolina is a physicist from UNAM. She lives in Mexico City. Her research interest is solving biological and social problems through statistical physics techniques.



Miranda Jaramillo Morales

Physics Universidad Nacional Autónoma de México Mexico City

Miranda currently studies Physics at UNAM. She has worked with ALMA Observatory, NASA, and Calar-Alto Observatory. She is an international science communicator, focused on space science and gender gap in STEAM.





Apollo Program



Maria Fernanda Lugo Dueñas Production & Systems Engineering Universidad Tecnológica de Guaymas Sonora

Fernanda was born in Guaymas, Sonora and is studying at Universidad Technologica de Guaymas. Her major is Productive Processes Engineering. She thinks this career is very interesting because it brings improvements to the different areas of industry.

Mayra Carolina Martínez Mata

Information Technologies Universidad Tecnológica de Ciudad Juárez Chihuahua

Mayra is majoring in Information Technology Engineering at UTCJ. She is interested in software development.

Jazmín Alondra Corral Flores Mechatronic Engineering

Instituto Tecnológico de Huatabampo Sonora

Alondra is a Mechatronic Engineering student, focusing on automization and robotics. She has participated in startups, panels, and "GAMM" University based tutoring program.

Ariana Marely Ornelas Orozco Aeronautical & Manufacturing Engineering Universidad Tecnológica de Guaymas Sonora

Ariana Ornelas began her education at UTG, where she is studying Aeronautical Manufacturing. Her main reason for choosing this career was to learn how to design aeronautical manufacturing processes and aeronautical mechanical parts through design methodologies and simulation.





Nikola Tesla



Sheila Daniela Gálvez González *Operations and Processes Engineering* Universidad Tecnológica de Ciudad Juárez Chihuahua

Sheila is majoring in Industrial Process and Operations Engineering at UTCJ. Her interests include the interpretation of manufacturing processes, the quality of products after their production, the interpretation of quality tools, kaizen events, and obtaining a Master's degree in Industrial Psychology.

Luz Cristina Mendoza González

Mechatronics Engineering Universidad Tecnológica Paso del Norte Chihuahua

Luz Mendoza has been a student of Mechatronic Engineering for 3 ½ years at UTPN. She is interested in learning about English, technology and electronics in an ecological way because she wants to help other people and the world.

Lesly Jacqueline Salazar Juárez

Mechatronics Engineering Universidad Tecnológica Paso del Norte Chihuahua

Jacqueline is studying Mechatronics Engineering at UTPN. She is passionate about robotics. In the future she would like to puruse a Doctoral degree in Technology and Innovation.

María Alejandra González Mendoza

Industrial Engineering Universidad Tecnológica Paso del Norte Chihuahua

Alejandra is studying Industrial Engineering in Chihuahua. She is a non-traditional student who returned to academia after raising her two daughters.



Nuclear Reactions and Radiation



Alexandra Monarrez Aguilar

Geosciences Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Alexandra is majoring in Geosciences Engineering at UACJ. She is working in her field of interest, geophysics, at the GIS department at her university.

Lilian Andrea Garay Cervantes

Materials Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Lilian is majoring in Materials Engineering at UACJ. She focuses on uncertainty in the photo-electrons photoemission emitted by x-rays, specializing in XPS analysis.



Danna Michelle Acosta Cazarez

Physics Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Danna is a Physics Engineering student at UACJ. She is interested in areas such as quantum mechanics and the theory of relativity. She is looking to pursue a Master's degree in Quantum Gravity in the future.

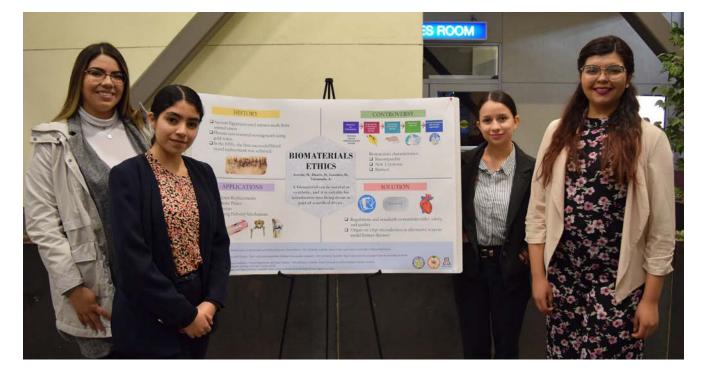
Dacia Ontiveros Medina

Civil Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Dacia is a Civil Engineering student at UACJ. She was selected to participate in an exchange program with Hanyang University in South Korea. Her research interests include construction, hydraulics, and structural engineering.



Biomaterials Ethics



Ana Patricia Valenzuela Angulo Biomedical Engineering

Instituto Tecnológico de Hermosillo Sonora

Ana is a Biomedical Engineering student at ITH, focusing on bionics, and with special interest in biomechanical and clinical research.

Mónica Arreola Pérez

Materials Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Mónica is studying Materials Engineering at UACJ. Her research interests include photovoltaic cells, flexible electronics, and thin polymer films. She has worked in a ceramics laboratory and as a teacher assistant in chemistry.

Diana Alejandra Duarte Mota

Biomedical Engineering Universidad Autónoma de Ciudad Juárez Chihuahua

Diana, a current Biomedical Engineering student at UACJ, has a strong interest in conducting future research in rehabilitation engineering and medical image processing.

Daniela González Uranga *Biomedical Engineering* Universidad Autónoma de Ciudad Juárez Chihuahua

Daniela, a Biomedical Engineering student at the UACJ, has prepared herself throughout her career to be a bioimaging researcher.







Important Contributions of Women in STEM



María Fernanda Domínguez Acosta

Computer Science Universidad de Sonora Sonora

María is studying for her Bachelor's degree in Computer Science at the University of Sonora in Hermosillo. She is interested in researching computability theory and software accessibility.

Martha Ximena Valdez Corona

Industrial Engineering Instituto Tecnológico Superior de Puerto Peñasco Sonora

Martha is studying at ITSPP in Sonora. Her major is Industrial Engineering with specialty in productive maintenance. She is interested in industrial safety and sustainable development.



Alejandra Zatarain Alpuche

Chemical Engineering Universidad de Sonora Sonora

Alejandra studies Chemical Engineering at UNISON. She has a special interest in the nanomaterials field and has participated in a research project about metal nanoparticles at CINVESTAV Querétaro.

María Ximena Sandoval del Hoyo

Computer Science Universidad de Sonora Sonora

Ximena, a Computer Science major at the University of Sonora, Hermosillo, has contributed to web applications and data structure projects. She has a special interest in AI, theoretical computation, and software engineering.











Special Thanks to our Partners

- BIO5
- Writing Skills Improvement Program (WSIP)
- Tree-Ring lab
- Worlds of Words (WOW)
- Women in Science and Engineering (WISE)
- Richard F. Caris Mirror Lab
- International Admissions
- Tech Parks
- Student Union

Keynote Speaker sponsor:

Dr. Don Slack, Professor, Agriculture and Biosystems Engineering

• Panelists:

Dr. Martha Civil, Emma Rocio Fajardo, Laura Paredes Oldaker, Alma V. Peralta, Rosa María Rojas and Dr. Adriana Zúñiga. Panel moderator: Dr. Adrián Arroyo

• What is Politics? Class:

Dr. Noam Chomsky, Dr. Marvin Waterstone & Teaching Assistant Leader, Erika Sylvia Nacim

- Documenting Scholarships and Community: Dr. Nolan Cabrera, Dr. Roberto Cintli Rodriguez, Dr. Cristina D. Ramirez and Dr. Michelle Tellez. Moderator: Dr. Maribel Alvarez.
- Borderlands Brewing Co. and Las Hermanas Project: Ayla Kapahi, MA and Savanna Saldate.

Group Coordinators:

- UNAM -Tucson: Dr. Elena Centeno and Dr. Arnoldo Bautista
- COECYT-Sonora: Yuria Leyva Chávez, MA and Myrna Casarez Zazueta, MA
- Institute of Innovation and Competitiveness: Gerardo Padilla Aguilar y Adriana Cabello Hernández, MA

State Sponsors:

- Chihuahua: Dr. Lisbeily Domínguez Rubalcaba and Berenice Hernandez, MA
- Sonora: Dr. Antonio Rodríguez Valdez
- Mexico City: Dr. Catalina E. Stern Forgach, Mtra. María Guadalupe Lucio Gómez-Maqueo, Dr. Víctor M. Velázquez Aguilar and Ing. Alexia Gil Tejeda



The University of Arizona has a long history of engagement with Mexico across many disciplines that reflects the shared geography and the strong social, cultural, and economic ties with our neighbor.

The Office of Mexico Initiatives in University of Arizona Global works to strengthen the University's partnerships with Mexico through innovative approaches and collaboratively developing solutions that impact our shared region and also elevate the importance of Mexico's impact on the creation of new knowledge at the University, and on the region's social, cultural, and economic well-being.

The University's engagement with Mexico touches each of the 5 Pillars of the University of Arizona Strategic Plan: Student Success, Grand Challenges, Arizona Advantage, UA Global and Institutional Excellence.

Management of the key partnerships in Mexico and of internal relationships with University stakeholders is critical to creating and maximizing new opportunities for cross-border collaboration.

As a leading public land grant and designated Hispanic Serving Institution, the University of Arizona is uniquely positioned as a benchmark institution recognized for its engagement with Mexico.









Tania Eulalia Martinez-Cruz is an Ayuuk indigenous woman who was born in 1987 in Tamazulápam del Espiritu Santo, Mixe, Oaxaca, Mexico.

She received her B.Sc. in Irrigation Engineering from Chapingo Autonomous University in 2009. In 2008, she was awarded the "Susana Aspiroz Rivero" award for her outstanding academic trajectory in the Irrigation Engineering program. From 2006 to 2009 she worked in sanitary and environmental engineering. At the end of 2009, she got involved in several agricultural irrigation projects and she decided to pursue a career in agriculture.



In 2009, she became the first indigenous recipient of a Fulbright scholarship in Mexico, and pursued her graduate studies in the U.S. In 2012, she graduated with a Master's degree in Agricultural and Biosystems Engineering from the Univer-

sity of Arizona after working on issues of crop modelling, water stress in crop production, biofuels and water management. In 2012, she was also awarded with the best paper award in the Agricultural Engineering category in the 4th Khon Kaen University International Engineering Conference organized by Khon Kaen University in Thailand.

In 2012, she joined the International Maize and Wheat Improvement Centre (CIMMYT) as a consultant for the Sustainable Modernisation of the Traditional Agriculture (MasAgro) Programme for an ICT4D project and agricultural extension component in Mexico. In 2013, she was awarded a scholarship from the Mexican National Council of Science and Technology to pursue a PhD. In November 2013, she started a joint PhD connected to both Wageningen University and CIMMYT and funded by several grants. She obtained her doctoral degree this January 2020.

Since 2012, she has collaborated in several projects and international organisations on different projects in Latin America, such as CIMMYT, Value for Women and the Oversees Development Institute. Currently she works as a Community Specialist for the Global Landscapes Forum, Center for International Forestry Research, where she mobilizes local landscape initiatives around the world. Her research interests cover politics of knowledge and research, and processes of social inclusion and exclusion in technology-driven interventions in agriculture. She is also interested in working to create more inclusive initiatives linked to agriculture, climate justice and rural development.

Tania is also a social activist promoting the conservation of native maize as key to the biocultural diversity of indigenous peoples. In 2018, she presented on these issues at the 1st High-Level Expert Seminar on Indigenous Food Systems at the Food and Agriculture Organization (FAO) in Rome and in the "CUMIPAZ" Peace Summit in Guatemala. In 2019 she also presented on these issues in the Global Landscapes Forum in Bonn, Germany and in the United Nations headquarters in New York. She also collaborates with several pro-education NGOs that support indigenous girls, women, and children, and children and youth in vulnerable situations. In 2016, she was awarded the Mexican National Youth Prize for academic achievement but also for her commitment to supporting social causes.

On January 1st, 2020 Tania also received her 'baston de mando' (a symbolic wooden cane used to confer authority in some indigenous communities) to fulfil a year of community service as the Secretary of the Women's Office in her hometown of Tamazulapam del Espiritu Santo. During her one-year term, she will be supporting the leader of the Women's Office in issues related to the welfare of women in her community.

Tania's participation in the 2020 seminar was sponsored by Dr. Donald Slack and the Mexico Initiatives office at the University of Arizona.



Mexico Initiatives THE UNIVERSITY OF ARIZONA



Mexico Initiatives University of Arizona Global

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SEC Secretaría de Educación y Cultura

