American Chemical Society

ACS Midland Section

Lunch and Learn Seminar Series

Quantum Computing: Prospects for Chemistry and Automated Synthesis

Dr. Santiago Nunez Corrales

October 29, 2025
MSU St. Andrews
Midland, MI

Programming Committee:
Judith Espinoza, Allison Abdilla, Raghida Bou Zerdan, Nanguo Liu

ACS Chemistry for Life®

Event flyer

ACS Midland Section Lunch & Learn

Quantum Computing: Prospects for Chemistry and Automated Synthesis

Abstract:
Quantum computing, in contrast to classical computing, harnesses the unusual properties of quantum mechanics to provide a framework capable of solving certain classes of currently intractable problems compared to existing methods. From the theoretical formulation of Feynman to today's use cases in various science and engineering domains, quantum computing has demonstrated increased promise with a global market above $1.6B by the end of this year. In this talk, we will summarize the foundations of quantum computing and review the state of the art and its increasing viability for chemistry and automated synthesis, two paradigmatic examples whose algorithms scale poorly with more complex molecules and protocols. We will finally discuss existing limitations of quantum processing units (QPUs) and their current trajectory from Noisy Intermediate-Scale Quantum devices (NISQ) to utility-scale, fault-tolerant quantum computers (FTQC) expected within this decade.

Santiago Núñez-Corrales
Quantum Lead Research Scientist
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Speaker Biography
Santiago Núñez-Corrales, Ph.D. serves as Quantum Lead Research Scientist at the National Center for Supercomputing Applications (NCSA), University of Illinois Urbana-Champaign (UIUC). He also serves as faculty affiliate at the Illinois Quantum Information Science and Technology Center (IQUIST), the Center for Global Studies (CGS), the Arms Control & Domestic and International Security (ACDIS), and Illinois Informatics at the same institution. His expertise includes quantum programming language design, digital twins for quantum computing, devising distributed quantum computation protocols, quantum applications in science and engineering, HPC-QPU integration, and dependable classical-quantum computer systems engineering. Dr. Núñez-Corrales obtained his doctoral degree in Informatics from UIUC, and a B.S. in Computer Engineering from the Costa Rica Institute of Technology.

Lunch RSVP

Wednesday, October 29th, 2025
MSU St. Andrews
1910 West St Andrews Rd, Midland MI 48640
11:30 – 12:00pm Lunch & Networking
12:00 – 1:00pm Seminar
Joining online? Register in link below:
Midland ACS Lunch and Learn

LinkedIn Post

Judith Espinoza • You
Infrastructure
2mo •

🔬 Excited for Quantum Computing applied to Chemistry? Join Us!

The ACS Midland Section invites you to the Lunch & Learn seminar featuring Santiago Núñez-Corrales, Ph.D., Quantum Lead Research Scientist at NCSA, University of Illinois Urbana-Champaign.

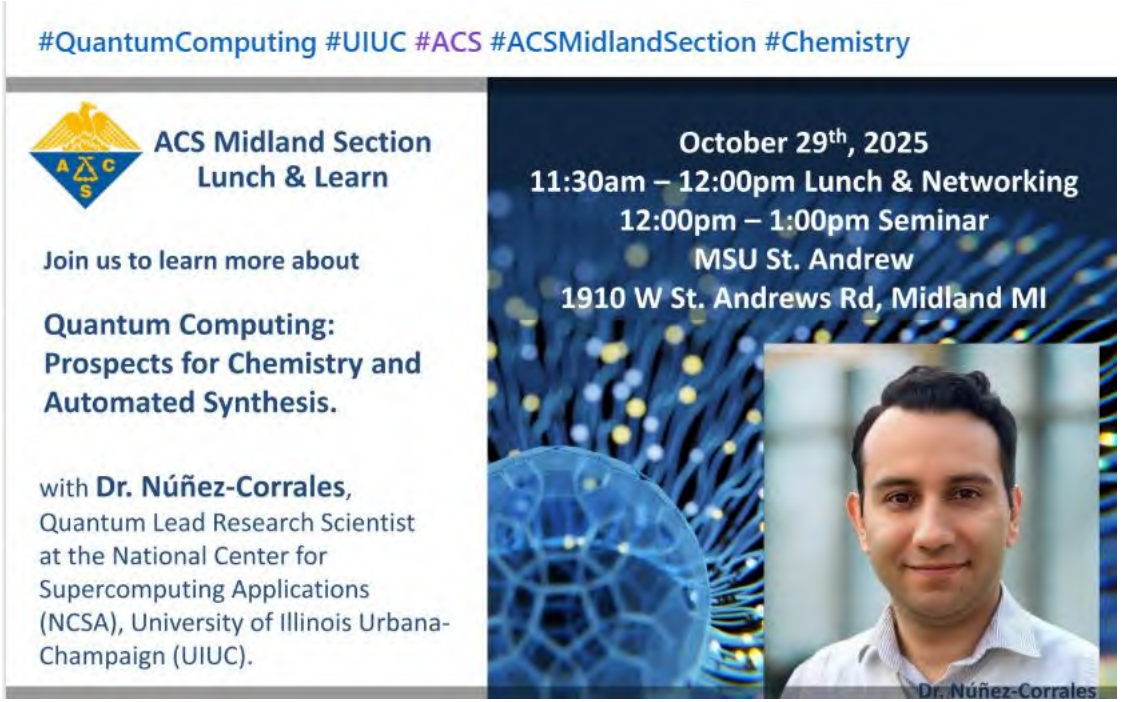
Dr. Núñez-Corrales will discuss the foundations and state-of-the-art of quantum computing, with a focus on its growing impact in chemistry and automated synthesis. Learn about the transition from Noisy Intermediate-Scale Quantum devices (NISQ) to fault-tolerant quantum computers (FTQC), and the future of quantum algorithms for complex molecules and protocols.

Don't miss this opportunity to connect, learn, and explore the future of quantum computing!

🔗 Register to join in person or ONLINE:

https://lnkd.in/gmu57vxB

🗓️ Date: Wednesday, October 29th, 2025
📍 Location: MSU St. Andrews, 1910 W St Andrews Rd, Midland, MI 48640
🍽️ Lunch & Networking: 11:30 AM – 12:00 PM



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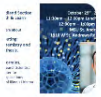

ACS Lunch and Learn Quantum Computing
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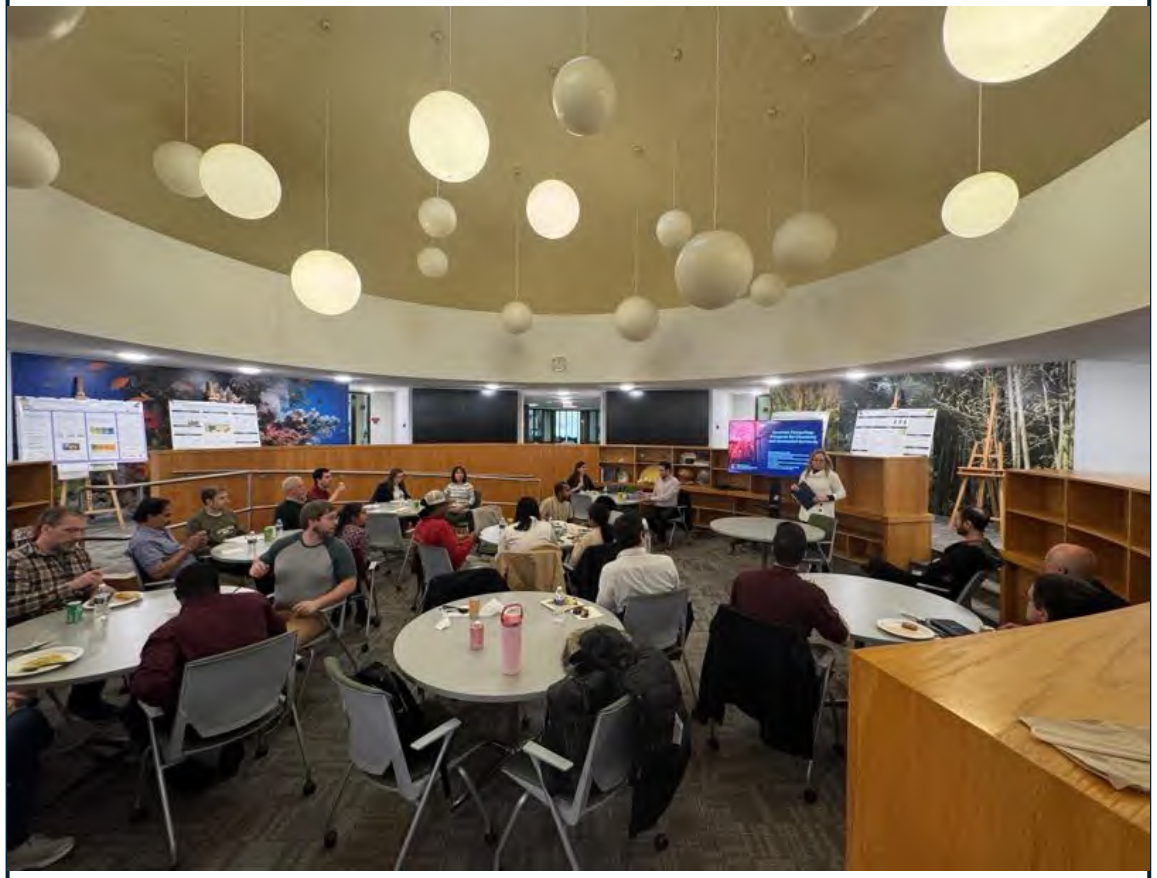
Discovery

Impressions	544
Members reached	292

Picture 1

October 29th, MSU St. Andrews, Midalnd MI. Judith Espinoza during introduction of the speaker.

Picture 2



October 29th, MSU St. Andrews, Midalnd MI. Judith Espinoza during introduction of the speaker. View including attendees.

Picture 3

October 29th, MSU St. Andrews, Midland MI. Santiago Nunez Corrales presenting his seminar.

Picture 4

October 29th, MSU St. Andrews, Midland MI. Santiago Nunez Corrales at the conclusion of the seminar.

Picture 5

October 29th, MSU St. Andrews, Midland MI. The programming committee with the speaker. From left to right: Allison Adbilla (co-chair), Santiago Nunez Corrales (speaker), Raghida Bou Zerdan (co-chair), and Judith Espinoza (chair).