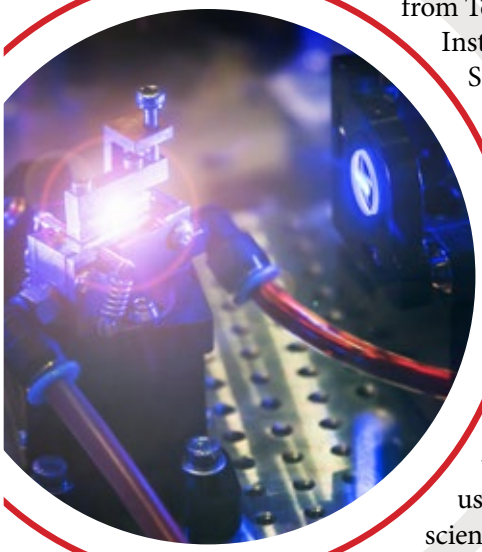

Quantum and
Laser Fusion Science
Summer Camp
July 14-25, 2025
Be part of a world-class opportunity for high school students
and teachers energized to study and use quantum science,
at Casper College, in Casper Wyoming.

Quantum and Laser Fusion Science Summer Camp

The Quantum and Laser Fusion Science Summer Camp is a unique opportunity for high school students and teachers who are energized to study and use quantum science.



Taught by professors and scientists from Texas A&M University's Institute for Quantum Science and Engineering, the camp will delve into selected principles of quantum science in the first week and in applications of quantum science in the second week. Science and the scientific method of investigation will underscore the process used by students to give scientific validity to their work in the classroom, laboratory, and group settings. Special guest lecturers include members from the National Academy of Sciences and other world-renowned scientific organizations.

The opportunity for students to learn from leading researchers, scientists, and professionals in the field of quantum science brings a level of learning and interaction to the Quantum and Laser Fusion Science Summer Camp that is world-class.

The camp includes an opportunity for a limited number of current high school instructors to attend and reinforce their knowledge of selected topics in quantum science and from added live activities. Teachers are encouraged to invite interested students to attend the camp.

Topics of Learning

Students will gain experience working in teams, presenting ideas, concepts, and results in a group setting, and will see the scientific method of investigation, exploration, discovery, and validation at work.

- Is matter made of particles and/or waves? What are they? What do they do? How do they interact? How or why does it matter? How does quantum physics differ from traditional or classical physics?
- Quantum uncertainty. Can you know where something is and how it's moving?
- Quantum eraser. Can you erase or change the past?
- Quantum superposition, entanglement and teleportation. Can something be in two places at the same time?
- Quantum computing. A perfect security system needs an unbreakable code.
- What is quantum science and how does it impact our lives today?
- How has quantum science increased our understanding of cellular systems and processes of living organisms?
- Laser fusion for future energy

Cost

The Quantum and Laser Fusion Science Summer Camp is funded through donations and in-kind assistance from the individuals and organizations mentioned in this brochure.

For those selected to attend the Quantum Science Summer Camp, these generous donations make it possible for tuition and on-campus housing and dining expenses to be free for students during the camp program. Limited travel assistance may be available upon request.

Location

The Quantum and Laser Fusion Science Summer Camp is being held at Casper College in Casper, Wyoming, located 4.5 hours north of Denver. If traveling by air, refer to the Natrona County International Airport, CPR, with connections from both Salt Lake City, Utah, and Denver. The airport is located just 15 minutes by taxi from the college.

Partners

Texas A&M University will bring in its partnership the RISE Hub — a consortium of universities, national labs and industrial partners, funded by the U.S. Department of Energy and focused on aspects of laser fusion energy. The Hub members will contribute to the Quantum and Laser Fusion Science Summer Camp and expand the camp's topics to include aspects of inertial fusion energy and excimer laser physics.

Camp Director

Marlan Scully was born in Casper and attended both Casper College and the University of Wyoming. He finished his undergraduate studies at Rensselaer Polytechnic Institute and later received his Ph.D. at Yale University. He went on to teach at Texas A&M, Princeton University, and developed a lab at the Baylor Research and Innovation Collaborative. With over 700 scientific articles, many patents, and two textbooks in laser physics and quantum optics, he is highly regarded among the scientific community and a member of the National Academy of Sciences. Every summer, for more than 20 years, Scully has held a summer conference at Casper College on quantum physics, quantum computing, quantum biophotonics, and other advanced quantum science topics. The attendees come from all around the world and typically include the top scientists or researchers in their fields and their students. Nobel Prize laureates and members of the National Academy of Sciences have been featured among conference participants. They come to Casper because of the variety of top scientists who gather here and because Scully makes sure they have a great experience.

Lead Instructor

M. Suhail Zubairy is a distinguished professor in the Department of Physics and Astronomy at Texas A&M University and the inaugural holder of the Munnerlyn-Heep Chair in Quantum Optics. He has made pioneering contributions in the fields of quantum computing, laser physics, and quantum optics. He has authored and co-authored several books and over 300 research papers on a wide variety of research problems relating to theoretical physics. His research and work have been widely recognized by the physics community and he has won many international awards. His book, "Quantum Mechanics for Beginners" — Oxford University Press, May 2020 — is written for someone with only a high school background in physics and mathematics to introduce them to the fascinating world of quantum mechanics. The book includes an introduction to the fields of quantum communication and quantum computing.

"Successful participants will have completed a course of physics."

Apply Today!

If you're interested in the Quantum and Laser Fusion Science Summer Camp, go to the website below to learn more or to apply. Participants will be selected based on their application and ability to commit to the full camp schedule.

Application deadline: Applications received by April 30, 2025 will be given priority.

Students and teachers apply today:
caspercollege.edu/QuantumScienceCamp

Scan to begin your application.

Our Partners

Institute for Quantum Science & Engineering at Texas A&M University

Princeton University

Casper College

Natrona County Schools

RISE

INERTIAL FUSION SCIENCE AND TECHNOLOGY HUB

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