

October 23, 2025

Open Positions: Advanced Raman Diagnostics for Hydrogen Detection

Professor Yalin's research [group](#) in the Department of Mechanical Engineering at Colorado State University (CSU) has openings for Postdoctoral Fellow / Research Scientist position(s) to start ASAP in Fall 2025 or Spring 2026. The research is in collaboration with other leading CSU faculty (Dr Bret Windom; Dr Ciprian Dumitrache) at the state-of-the-art [CSU Powerhouse Energy Campus](#).

Laser Sensing of Trace Atmospheric Hydrogen: The United States is investing heavily in hydrogen energy to enhance domestic energy security and accelerate decarbonization. As hydrogen infrastructure rapidly expands — encompassing production, distribution, storage, and end-use — there is a growing need for advanced, sensitive systems to detect and quantify hydrogen emissions. Hydrogen cannot be measured with conventional gas detection methods. To address this, our group is part of the U.S. Department of Energy ARPA-E [H2SENSE](#) program, which supports the development of next-generation hydrogen detection technologies. We also have related support from the Colorado state government. Our research focuses on Raman spectroscopy approaches for hydrogen sensing:

- **Photoacoustic Stimulated Raman Spectroscopy (PARS)**, which detects hydrogen via its acoustic signature, and
- **Coherent Anti-Stokes Raman Scattering (CARS) spectroscopy**, which uses optical signal detection.

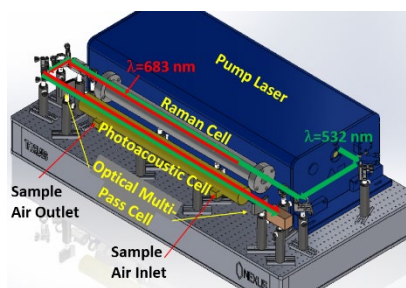
Both approaches emphasize sensor design, miniaturization, and packaging for robust field applications. Field testing will be conducted in collaboration with the National Renewable Energy Laboratory (NREL) in Golden, CO, and the National Oceanic and Atmospheric Administration (NOAA) in Boulder, CO. **This position offers a unique opportunity to contribute to cutting-edge laser diagnostics, optical sensing, and energy transition technologies while working closely with leading national laboratories and government agencies.** More information on the Department of Mechanical Engineering at CSU can be found [here](#), and city of Fort Collins, CO [here](#).

Postdoctoral fellow / research scientist applicants: We are seeking highly qualified postdoctoral fellows or research scientists. Candidates should be highly motivated and have experience with laser spectroscopy. Job-postings with application info-

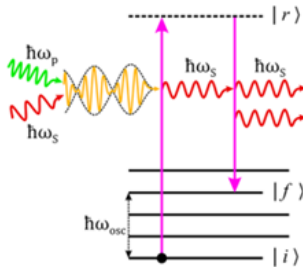
<https://jobs.colostate.edu/postings/152670>

<https://jobs.colostate.edu/postings/152341>

Interested individuals are also encouraged to [email Dr. Yalin](#) and share their CV.



State-of-Art Optoelectronic Systems



Non-Linear Optics (SRS)



Partner Test-Facilities (NREL)