

# Stanford

---

## Christopher Strand

Research Engineer

Mechanical Engineering

### Bio

---

#### ACADEMIC APPOINTMENTS

- Sr Research Engineer, Mechanical Engineering

### Publications

---

#### PUBLICATIONS

- **Scientific accomplishments and research avenues of Professor Ronald Hanson** *COMBUSTION AND FLAME*  
Davidson, D. F., Jeffries, J. B., Oehlschlaeger, M. A., Strand, C. L.  
2021; 224: 2–5
- **Temperature-dependent absorption cross section measurements for propene, 1-butene, cis-/trans-2-butene, isobutene and 1,3-butadiene in the spectral region 8.4-11.7  $\mu\text{m}$**  *JOURNAL OF QUANTITATIVE SPECTROSCOPY & RADIATIVE TRANSFER*  
Ding, Y., Su, W., Johnson, S. E., Strand, C. L., Hanson, R. K.  
2020; 255
- **Two-color frequency-multiplexed IMS technique for gas thermometry at elevated pressures** *APPLIED PHYSICS B-LASERS AND OPTICS*  
Wei, W., Peng, W., Wang, Y., Shao, J., Strand, C. L., Hanson, R. K.  
2020; 126 (3)
- **Analysis of laser absorption gas sensors employing scanned-wavelength modulation spectroscopy with 1f-phase detection** *APPLIED PHYSICS B-LASERS AND OPTICS*  
Peng, W., Strand, C. L., Hanson, R. K.  
2020; 126 (1)
- **Dual-comb Spectroscopy for High-temperature Reaction Kinetics** *Measurement Science and Technology*  
Pinkowski, N. H., Ding, Y., Strand, C. L., Horvath, R., Geiser, M.  
2020
- **Two-temperature Collisional-radiative Modeling of Partially Ionized O<sub>2</sub>-Ar Mixtures over 8000-10,000 K Behind Reflected Shock Waves.** *The journal of physical chemistry. A*  
Li, Y., Wang, S., Strand, C. L., Hanson, R. K.  
2020
- **Calibration-free breath acetone sensor with interference correction based on wavelength modulation spectroscopy near 8.2  $\mu\text{m}$**  *APPLIED PHYSICS B-LASERS AND OPTICS*  
Schwarm, K. K., Strand, C. L., Miller, V. A., Spearrin, R.  
2020; 126 (1)
- **R-branch line intensities and temperature-dependent line broadening and shift coefficients of the nitric oxide fundamental rovibrational band** *JOURNAL OF QUANTITATIVE SPECTROSCOPY & RADIATIVE TRANSFER*  
Almodovar, C. A., Su, W., Strand, C. L., Hanson, R. K.  
2019; 239
- **High-pressure, high-temperature optical cell for mid-infrared spectroscopy** *JOURNAL OF QUANTITATIVE SPECTROSCOPY & RADIATIVE TRANSFER*  
Almodovar, C. A., Su, W., Strand, C. L., Sur, R., Hanson, R. K.

2019; 231: 69–78

- **A two-wavelength ethylene-absorption temperature diagnostic** *MEASUREMENT SCIENCE AND TECHNOLOGY*  
Cassady, S. J., Susa, A. J., Ferris, A. M., Strand, C. L., Hanson, R. K.  
2019; 30 (3)
- **Single-Ended Sensor for Thermometry and Speciation in Shock Tubes Using Native Surfaces** *IEEE Sensors Journal*  
Peng, W. Y., Wang, Y., Cassady, S. J., Strand, C. L., Hanson, R. K.  
2019
- **Single-ended mid-infrared laser-absorption sensor for time-resolved measurements of water concentration and temperature within the annulus of a rotating detonation engine** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*  
Peng, W., Cassady, S. J., Strand, C. L., Goldenstein, C. S., Spearrin, R., Brophy, C. M., Jeffries, J. B., Hanson, R. K.  
2019; 37 (2): 1435–43
- **Mid-infrared laser absorption spectroscopy of NO<sub>2</sub> at elevated temperatures** *JOURNAL OF QUANTITATIVE SPECTROSCOPY & RADIATIVE TRANSFER*  
Sur, R., Peng, W. Y., Strand, C., Spearrin, R. M., Jeffries, J. B., Hanson, R. K., Bekal, A., Haider, P., Poonacha, S. P., Vartak, S., Sridharan, A. K.  
2017; 187: 364–374
- **Line intensities and temperature-dependent line broadening coefficients of Q-branch transitions in the  $\nu(2)$  band of ammonia near 10.4  $\mu\text{m}$**  *JOURNAL OF QUANTITATIVE SPECTROSCOPY & RADIATIVE TRANSFER*  
Sur, R., Spearrin, R. M., Peng, W. Y., Strand, C. L., Jeffries, J. B., Enns, G. M., Hanson, R. K.  
2016; 175: 90–99
- **Line intensities and temperature-dependent line broadening coefficients of Q-branch transitions in the  $\nu_2$  band of ammonia near 10.4  $\mu\text{m}$ .** *Journal of quantitative spectroscopy & radiative transfer*  
Sur, R., Spearrin, R. M., Peng, W. Y., Strand, C. L., Jeffries, J. B., Enns, G. M., Hanson, R. K.  
2016; 175: 90–99
- **Quantification of Supersonic Impulse Flow Conditions via High-Bandwidth Wavelength Modulation Absorption Spectroscopy** *AIAA JOURNAL*  
Strand, C. L., Hanson, R. K.  
2015; 53 (10): 2978–2987
- **Hypersonic Scramjet Testing via Diode Laser Absorption in a Reflected Shock Tunnel** *JOURNAL OF PROPULSION AND POWER*  
Schultz, I. A., Goldenstein, C. S., Strand, C. L., Jeffries, J. B., Hanson, R. K., Goyne, C. P.  
2014; 30 (6): 1586–1594
- **Fitting of calibration-free scanned-wavelength-modulation spectroscopy spectra for determination of gas properties and absorption lineshapes** *APPLIED OPTICS*  
Goldenstein, C. S., Strand, C. L., Schultz, I. A., Sun, K., Jeffries, J. B., Hanson, R. K.  
2014; 53 (3): 356–367
- **Supersonic Mass-Flux Measurements via Tunable Diode Laser Absorption and Nonuniform Flow Modeling** *49th AIAA Aerospace Sciences Meeting / New Horizons Forum and Aerospace Exposition*  
Chang, L. S., Strand, C. L., Jeffries, J. B., Hanson, R. K., Diskin, G. S., Gaffney, R. L., Capriotti, D. P.  
AMER INST AERONAUT ASTRONAUT.2011: 2783–91