



Laser remote sensing of greenhouse gases at NIST

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The National Institute of Standards and Technology is pursuing optical technologies for remote sensing of greenhouse gases in support of mitigation efforts and climate research. We will describe the development of a rapid, integrated-path differential absorption LIDAR (DIAL) system at our Boulder site as well as the development and testing of an indoor, range-resolved DIAL system on our Gaithersburg site.

Our eventual goal is the measurement of greenhouse gas emission rates from distributed sources covering areas of 1 km^2 to 10 km^2 . Such measurements require simultaneous wind and gas density measurements. The presentation will describe our progress toward these measurements as well as development of LIDAR laser sources and implementation of various direct and heterodyne detection schemes.