**Title**

Dual-comb spectroscopy

**Authors**

Ian Coddington,¹,* Nathan Newbury,¹,² William Swann¹

**Publication**


**Abstract**

Dual-comb spectroscopy is an emerging new spectroscopic tool that exploits the frequency resolution, frequency accuracy, broad bandwidth, and brightness of frequency combs for ultrahigh-resolution, high-sensitivity broadband spectroscopy. By using two coherent frequency combs, dual-comb spectroscopy allows a sample’s spectral response to be measured on a comb tooth-by-tooth basis rapidly and without the size constraints or instrument response limitations of conventional spectrometers. This review describes dual-comb spectroscopy and summarizes the current state of the art. As frequency comb technology progresses, dual-comb spectroscopy will continue to mature and could surpass conventional broadband spectroscopy for a wide range of laboratory and field applications.

**Institute**

¹National Institute of Standards and Technology (USA)