# **Exploring Mars on the NASA Curiosity and Mars 2020 Rovers**

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The Curiosity rover landed in Gale Crater, Mars on August 5, 2012. The rover includes a diverse suite of instruments including MastCam, Alpha Particle X-Ray Spectrometer (APXS), Chemistry & Mineralogy (CheMin), Sample Analysis at Mars (SAM), and the Chemistry & Camera (ChemCam) instrument. The ChemCam instrument is the integration of a remote Laser-Induced Breakdown Spectrometer (LIBS) and a black and white Remote Micro-Imager (RMI). The ChemCam LIBS instrument uses a laser to determine the chemistry of rocks and soils up to 7 m from the rover mast and has collected over 600,000 LIBS spectra since landing over six years ago.

The Mars 2020 rover is currently under construction and will start to explore Jezero crater in February 2021. The Mars 2020 rover includes several instruments capable of microscale geologic analysis including MastCam-Z, Planetary Instrument for X-ray Lithochemistry (PIXL), Scanning Habitable Environments with Raman & Luminescence for Organics and Chemicals (SHERLOC), and SuperCam. SuperCam contains an integrated suite of remote instruments based in the ChemCam architecture including LIBS, Raman Spectroscopy, Time-Resolved Luminescence Spectroscopy (TRLS), Visible and Infrared Spectroscopy (VISIR), color RMI, and a microphone. The SHERLOC instrument is an arm mounted ultraviolet Raman and Fluorescence Spectrometer designed to detect organic and biological materials in Jezero crater.

In this presentation, I will be discussing the Curiosity mission and highlight some of the ChemCam discoveries over the last six years. I will also discuss the Mars 2020 rover mission goals as well as the contributions SuperCam and SHERLOC will make to meeting these mission goals.