Interview with an EMSL user:
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My name is Debra Fischer, and I'm a professor of astronomy at San Francisco State University.

We're here at EMSL, today, to obtain a scan of an iodine cell. EMSL is unique in offering the capability of extremely high-resolution, high signal-to-noise scans of molecular substances. For our research, we need the scan of an iodine cell in order to find planets orbiting other stars.

The cell is actually put into the light path – right in front of the telescope – as the light is coming down into our instrument. It serves as a calibration against which we measure the shifting lines of the stars. This information, ultimately, tells us the mass of planets orbiting other stars, what their orbital period are – how long they take.

Our team has been quite successful now in finding something like 200 planets orbiting other stars. We've been stuck, frankly though, finding planets that are similar to Jupiter and Saturn or Neptune -- fairly massive planets that exert large gravitational tugs on their stars.

Where we would like to go, the reason that we're here at EMSL today, is that we'd like to be able to find planets that are more similar to the Earth. In habitable zone orbits that take about one year to go around the host star.

To do that, we need to improve our precision. We've identified one of the weak points in our analysis as this calibration. We set out to find and institution that could calibrate the iodine cell at the level that we need. EMSL at Pacific Northwest National Labs was unique in offering this capability of extremely high-resolution, high signal-to-noise.

It's a service that we couldn't find anywhere else in the United States. We think that it's going to improve our analysis so that we'll be able to – in the next year or two – perhaps find another world that similar to our own.

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