

## Award Winning Technology

### Arc Position Sensing Technology

Flaws in specialty metals used in aerospace and other advanced applications are often caused by solidification problems that arise during the melting and refining process. A common problem is arc constriction during melting. Previously, these conditions could not be identified during furnace operations, requiring ingot manufacturers to perform extensive testing on all ingots.

The Arc Position Sensing (APS) technology, developed by NETL's Dr. Rigel Woodside and Dr. Paul King with support from Chris Nordlund at ATI Albany Operations, is a system that determines spatial locations of diffuse current segments (electric arcs) in real time. This allows operators to digitally monitor arc locations while melting and refining those metals—a technique that provides quality control critical for safety. For the first time ever, through use of the APS technology, precise measurements can be taken of the electric current conduction path within vacuum arc remelting (VAR) furnaces for industries that use specialty metals such as nickel, titanium, and zirconium. The technology could be used to help produce materials with stronger chemical and mechanical homogeneity, increasing the yield in the specialty metals and alloys used in the airline industry and in other advanced applications.

In 2013, the APS technology was the recipient of an R&D 100 award. R&D 100 awards, widely recognized as the "Oscars of Innovation," identify and celebrate the top high technology products of the year. This technology is available for licensing.

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