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## **Advanced MicroLabs Wins Small Business Innovative Research Phase I funding for Online Ion Analysis Chemistry Development**

**FORT COLLINS** – The National Science Foundation (NSF) awarded \$150,000 to Advanced MicroLabs, LLC for finalization of selected anion and cation analysis techniques. The primary application for which the award was made is for real time measurement of corrosion and scaling indicators in electrical power plants. Additional benefit can be realized in the real time monitoring of discharge water from cooling towers.

This award follows closely a National Institutes of Health (NIH) Superfund Research Program award of \$845,000 to Advanced MicroLabs, LLC to further develop Online Ion Analysis Hardware.

Advanced MicroLabs uses microchip Capillary Electrophoresis with patent pending electrochemical detection technology, which originated at Colorado State University coupled with a patent pending sample delivery technology for real-time, online analysis. “Our sensitivity typically matches, if not out performs, Ion Chromatography, and our technique is much faster, easier, and less expensive” says Dr. Charles S. Henry, CEO of Advanced MicroLabs. “Plus, we can separate and detect almost any ion in water, allowing us to address many new online measurement needs such as those in power generating plants.”

Thermoelectric power plants utilize significant quantities of water for generating electrical energy. For example, a 500 MW power plant that employs once-through cooling uses over 12 million gallons per hour of water for cooling and other process requirements. With the electric power industry demand of conserving water and optimizing chemical usage, they find themselves challenged with the present analytical instrumentation approach. Its demand is further supported by the ever increasing requirements of applications in pure and ultra-pure waters, as found in boiler feed and condensate waters, where sub-ppb ( $\mu\text{g/L}$ ) levels are expected

and maintained. Monitoring targeted ions, such as chloride, sulfate, iron and copper will allow them to flag potential equipment failures at an early stage. In the electric power industry, malfunctioning equipment can be disastrous resulting in potential power outage. Peter Millett, Ph.D., a principal at ChemStaff and former director of water chemistry for the Electrical Power Research Institute comments: “What is needed is an online multi-parameter capillary electrophoresis analyzer that is capable of quantifying various anions and cations as low as less than one ppb would give us a chemical fingerprint, allowing us to predict potential water chemistry problems, like corrosion and scaling, and protect the downstream equipment.”

“This award is the cornerstone of our commercial thrust, providing product development resources and validating our scientific and commercial strategies,” continues Dr. Henry, CEO. “These Small Business Innovative Research (SBIR) Phase I and Phase II awards will allow Advanced MicroLabs to develop prototype commercial units with application specific chemistry. Detection limits below 1 µg/L (1 part per billion) have already been achieved in Chlorides, Sulfates, and Nitrates.” “Other Advanced MicroLabs studies have demonstrated measurement sensitivity and repeatability of interest to the power plant industry for ions like Calcium, Magnesium, and Potassium, and many more,” said Uwe Michalak an advocate of improved power plant water usage and now Director of Business Development at Advanced MicroLabs.

About Advanced MicroLabs. Founded in 2003, the company develops instrumentation and application specific detection chemistries using microchip Capillary Electrophoresis with a patent pending electrochemical detection technology originated at Colorado State University. Since its founding the Company has received scientific research and development awards of nearly \$3M to further this promising technology and has filed for additional patents. Headquartered in Fort Collins, Colorado, Advanced MicroLabs is in the final stages of launching its first commercial product. For more information, please visit [www.advancedmicrolabs.com](http://www.advancedmicrolabs.com).

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