

Materials scientists Scott Weil, John Hardy, and Jin Yong Kim received the “Best Paper” award at the International Brazing and Soldering Conference held in February and sponsored by the American Welding Society for their paper entitled, “Development of a Silver-Copper Oxide Braze for Joining Metallic and Ceramic Components in Electrochemical Devices.”

As part of the Fossil Energy [Advanced Research Materials Program](#), the three researchers have developed a new, low-cost method of joining electrochemically active ceramics to oxidation-resistant metals for use in high-temperature devices such as solid oxide fuel cells, oxygen and hydrogen, and solid-state sensors.

The process, referred to as reactive air brazing or RAB, utilizes a novel copper oxide-silver single phase liquid as the basis for joining and exhibits a number of advantages over traditional joining techniques, including excellent thermal cycling performance and long-term stability in both high temperature oxidizing and reducing atmospheres.

A significant feature of the RAB process: because the RAB process is conducted in air, capital expenses and operating costs can be kept to a minimum.

[Read more about this work.](#)