

High Temperature Superconductivity...Remember that subject?

The subject was in every paper during the autumn of 1986, 8 years ago now, when the news came that a superconductor had been discovered that had a transition temperature of an amazing 34 K.

This value amazed everyone because scholarly papers were published showing, and apparently proving, that no superconductor could exist with a transition temperature above 20 K.

No sooner was the 34 K material confirmed when someone in Texas (where else?) was said to have found a material with a transition temperature at 94 K. Now the race was on. Soon 110 K was reported, then 134 K, 250 K ... and even 270 K!

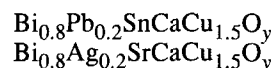
Every day, the newspapers contained new announcements and many prognostications of what the future would be like in a world of superconducting electrical power lines and levitated trains and super fast electronic circuits using Josephson Junctions.

That was all 8 years ago.

We stopped to wonder what has happened since those heady days, and found an answer at a symposium on the island nation of Bahrain in the Persian Gulf.

The Experimental Workshop and Symposium on High Temperature Superconductors was held at the University of Bahrain's Physics Department, 20-23 November 1994 and attended by researchers and educators from virtually all the various universities of the Arabian Peninsula. The organizing committee consisted of S. Al-Dallal, A. Al-Saie, A. Memon, W. Alnaser, A. Khalil, and M.N. Khan (organizer/coordinator).

The program was an excellent mixture of BCS Theory (and its shortcomings), new ideas on mechanisms responsible for superconductivity, and a great deal of attention to the materials properties of these materials. For this particular workshop, the focus was on the materials that are generally described by the "apparent" chemical formula:



Different methods for making the materials were described including those that involve the formation first of a glassy phase material.

No thin film molecular epitaxy techniques were specifically detailed. Physical properties of interest to the designer of electrical motors were described, and even more importantly, the areas where important design data were lacking were identified.

For many, the exciting activity was performing actual electrical measurements in liquid air on the materials. The most important message that came out of the symposium was that there is much work that needs to be done, now 8 years after the exciting times of the winter of 1986-87, and I really mean a lot of work to be done by the materials community.

This is exactly the area where ASM International excels—in the dissemination of materials information—in this new, and still exciting, area of materials development.



John R. Ogren

