

Metallurgy Conference Opens in City

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and materials engineering.

"If the Soviets tell us what kinds of things they are making with this method — they don't have to tell us how they are doing it — people in the field can then determine how you do it," Murr said.

He pointed out that this method of combining metals is becoming more important. Many metals cannot be welded together by heating, including titanium and copper, Murr said.

"But you can explosively weld them together," he said.

Such a combination is being looked at for use in superconducting materials, he said. Superconductivity is the point at which a material carrying an electrical current will have virtually no resistance to current. Thus, power is not lost in waste heat.

During the 1960s, the United States was using explosives to make quarters, Murr said. A sheet of copper was

sandwiched in between two sheets of nickel, covered with a thin explosive material and then exploded, he said.

"It blew these materials together," Murr said. "The materials flow together like ocean waves."

Another subject at the conference will be the effect of shock waves on metals.

Shock waves can be quite destructive, Murr pointed out, using as an example a small stone striking a car windshield. It's not the stone that breaks the glass, rather the shock wave created by the stone striking it. "You get a pocket of glass that pops out," he said.

The shock wave travels through the glass, reflects back and travels in the other direction. "You then have two waves opposing one another and that tears the material apart," Murr said.

The same kind of effect occurs when space capsules are struck by meteorites, Meyers said.

Laser light can be used to create this phenomenon, Meyers said. In the future, this may be the basis of military weapons, he said.

The conference is being sponsored by the U.S. Army Research Office, National Science Foundation, New Mexico Tech Research and Development Division, New Mexico Tech Research Foundation and the Physical and Mechanical Metallurgy Committees of the Metallurgy Society of the American Institute of Mining, Metallurgical and Petroleum Engineers.

Murr pointed out that the National Science Foundation and the Army Research Office said no taxpayer dollars could be used to pay for travel expenses of Soviet scientists attending the conference. Their expenses were paid for by their own government, he said.

All those attending the conference will benefit from it, he said — from the basic research scientists to the engineers.