

— Company Notebook —

TOSHIBA'S RESEARCH INTO SUPERCONDUCTIVITY

After achieving significant success in the application of metal low-temperature superconductors, Toshiba Corporation has become a leader in high-temperature superconductivity. The corporation established Advanced Research Laboratory in 1988 for basic research into high-temperature superconducting oxides. Major superconductivity research targets include: substances exhibiting high-temperature superconducting phenomena, particularly non-copper candidate oxides and improving the superconducting properties of yttrium and bismuth-family superconductors. The most important achievements in the last year include: clarification of the formation mechanism of bismuth-system thin films and development of a technology to control direction of crystal growth, development of methods to obtain a pinning effect and to raise the critical current density by introducing lattice defects in Bi-based high-temperature superconductors, realization of all-oxide Josephson junctions, consisting of thin films of yttrium system superconductor, praseodymium-system normal superconductor and yttrium system.

Toshiba is also advancing applications development of superconducting technology. The firm applied oxide-based, high-temperature superconductor technology to its development of a maglev transportation system and 1.15 T coils. In metal superconductors, Toshiba cooperated in plans for an experimental 42 km test maglev line in Yamanashi Prefecture and the development of 4.7 T MRI.

LABORATORY SUPERCONDUCTING HGMS INSTALLED

Carpco SMS Ltd. has installed a laboratory superconducting high-gradient magnetic separator at a US kaolin company. The unit can generate 6 Tesla, weighs 680 kg and it is claimed that it can be scaled-up to a throughput of 60 t/h. A second unit is, reportedly, under construction, for a client outside the US.

A NEW RARE-EARTH MAGNET PROJECT

A new factory manufacturing rare earth permanent magnets is to be developed by Swift Levick Magnets. The company owned by Outokumpu will invest £7 m in the new project, with operations set to commence in June 1993. Although the operation will concentrate on the manufacture of Sm-Co types (both SmCo_5 and Sm_2Co_7), the facility will have an option to manufacture NdFeB magnets, following an agreement between Outokumpu and Sumitomo.