The Second International Superconductivity Industry Summit
--Towards Wider Commercialization of Superconductivity--

Hakone, Japan
May 10-11, 1993

Joint Communique

ISTEC/CSAC/CONECTUS

Superconductivity is one of the major scientific discoveries of the twentieth century. The discovery of high temperature superconductivity (HTS) in 1986 marked a tremendous advance in the field of superconductivity because it enhanced the promise of enormous social and economic benefits worldwide in such fields as energy, electronics, communications, medicine and transportation.

Since the discovery of HTS materials in 1986, a tremendous amount of research and development, virtually unprecedented in any field of science and engineering, has been accomplished on a global basis in industrial, government and university laboratories. The rapid rate of progress in HTS research and development, which has been faster than most realistic expectations, has set the stage for the commercialization of this emerging technology.

In May, 1992, the First International Superconductivity Industry Summit (ISIS-I) was convened in Washington, DC by industrial groups from Japan, the United States and Europe. The purpose of ISIS is to promote international cooperation and open discussion between industry, government and academic participants in the field of superconductivity. The participants in ISIS are ISTEC (Japan's International Superconductivity Technology Center), CSAC (U.S.'s Council on Superconductivity for American Competitiveness) and CONECTUS (CONsortium of European Companies determined To Use Superconductivity).

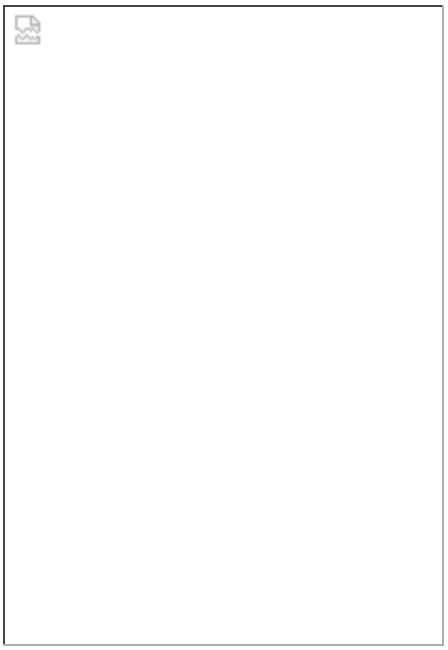
The conclusion of ISIS-I was that commercialization of HTS would occur by the end of the decade and that the markets for HTS applications would grow steadily during the first decades of the 21st century. It was also agreed that considerable research, development and manufacturing scale-up activities were still required to reach the full commercial potential of HTS technology. The unanimous view of ISIS-I was that beyond today's markets, additional large markets for superconductor products will emerge, and that acceleration of the reasearch, development and manufacturing activities required to reach full commercialization was clearly justified. The continued rapid rate of developments in HTS technology since ISIS-I firmly supports the conclusions of the first summit meeting.

It was concluded at ISIS-I that global market forecasts for superconductivity should be a focal point for the second summit meeting, ISIS-II, to be held in Japan in May, 1993. Market forecasts were prepared by experts in Japan, the United States and Europe prior to ISIS-II, and at the second summit meeting, compilation of a global forecast was completed.

ISIS-II provided an opportunity for progress reports for the main fields in which research, development, manufacturing and commercialization of superconductivity are being pursued (these fields include materials processing, electronics, electric power, communications, medicine, and transportation). The participants in ISIS-II agreed that while additional R&D and manufacturing scale-up activities are required to achieve full commercialization of HTS technology, it is clear that commercialization will occur in the relatively near term; it is no longer a question of if HTS technology will be commercialized, but when. Companies and governments that invest aggresively in HTS technology development will enjoy the benefits of participating in a major new industrial sector by the turn of the century.

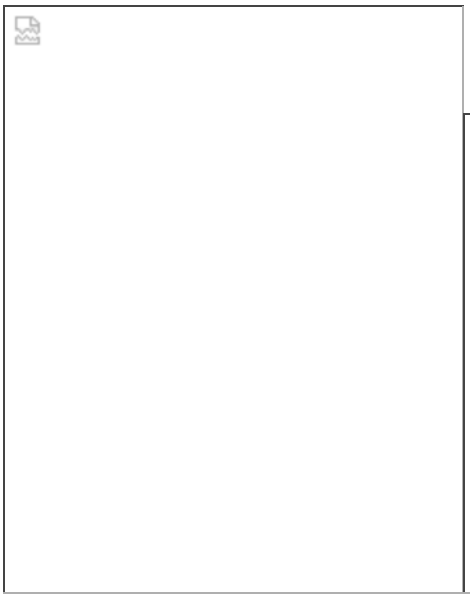
The participants at ISIS-II discussed strategies to accelerate the further commercialization of superconductor technologies. The participants agreed that, while continuing to exchange information closely, they should also determine ways to cooperate in joint projects that will help to accelerate the process of commercialization of HTS technology. The consensus was that joint projects should focus on the demonstration of end-use applications. Joint or collaborative projects will drive the development of the base or enabling technologies, thereby paving the way for much shorter product introduction cycles.

The goals of ISIS are represented in the ISIS pyramid, which leads to future joint projects, and a focus on rapid commercialization of HTS technology.



Worldwide Market Forecast for Superconductivity

Market Estimation(World Wide)						
		Present	2000	2010	2020	Products (Example)
Total Market Size ($ billion)		1.5	8-12	60-90	150-200	
Market Share of Each Field	Electronics	-	23%	32%	46%	Computer Microwave device ect.
	Energy	-	15%	16%	18%	SMES Generator ect.
	Transport	-	9%	6%	9%	Maglev train Electromagnetic propulsion ship ect.
	Medical	-	30%	24%	11%	Medical SQUID system MRI, MRS
	Others	-	23%	22%	16%	Magnet Magnetic shield ect.
	Total	-	100%	100%	100%	



Conclusions

1) The ISIS-II worldwide market estimation for superconductor products and devices clearly shows a vibrant industry with an extremely promising future.

2) The ISIS-II participants are in agreement that the wide-ranging applications of superdconductivity are steadily being realized according to previously forecast schedules.
3) The present global market for superconductivity is $1.5 billion and is forecasted to grow to $8-12 billion by the year 2000, $60-90 billion by 2010, and reach $150-200 billion by 2020.
4) The potential of the superconductor industry as a major global business is apparent, and the ISIS-II participants agree that continued and growing private investment and national government support around the world is necessary to sustain the future vision of superconductivity.
5) The 3rd ISIS will be held in Oxford, England on 10-11 May 1994.
