



# MEMBER SPOTLIGHT



## HELPING TDK MAINTAIN ITS EDGE THROUGH KNOWLEDGE, RELATIONSHIPS, AND JOINT PROJECTS

As a market leader in novel electronic materials, TDK has consistently strived to expand its horizons through innovative R&D partnerships with academia. In 1985, the company was particularly interested in gaining access to state-of-the-art research and expertise in materials science and engineering. In due time, TDK found what it was looking for at MIT, and a great deal more. Its decision to join the Industrial Liaison Program (as part of funding the TDK Professorship in Materials Science and Engineering) launched a robust collaborative relationship with MIT that continues to this day. "We've been conducting joint research and development projects and sponsored research programs with about 60 universities, but MIT is the only institute that has a liaison office like the ILP," notes Dr. Shigekazu Sumita, Director of TDK's Corporate R&D Planning Department. "ILP support has enabled us to build amicable relations with MIT researchers for over sixteen years."

Some of that support has come through the ILP Japan Office, whose services have included local ILP seminars on cutting edge technology, visits by MIT faculty and researchers, and delivery of MIT research publications. But most of the action has taken place in Cambridge. There, ILP officers have helped the company to maintain strong relationships and interactions with faculty holding the TDK chair, to send visiting scientists to MIT for two-year terms, and to initiate high tech research collaborations.

Since joining the ILP, TDK has targeted different technologies at different times to retain its edge in ferrites, ceramics and recording materials used in magnetic tape and optical disks, as well as in recording heads. According to Sumita, the expertise of each of the three successive TDK chair holders has matched the technology the company sought at the time. A case in point is Professor Michael Rubner, who has held the chair since 1993. "It was quite timely that Professor Rubner was appointed as the third TDK chair holder," Sumita recalls, "because he is an expert in organic materials such as polymers, and we had [previously] started developing organic EL (electroluminescent) displays."

The TDK Professorship eventually set the stage for much more extensive TDK/MIT interactions. In the past sixteen years, TDK has sent about twenty visiting scientists to MIT to study and develop electronic devices and related advanced technology. In Sumita's view, TDK participants have derived enormous benefits from these visits. "Upon their return, they engage in day-to-day work utilizing the network they built among scientists in their field, and the technology they learned about at MIT," he says. "Their hard work at MIT has increased their self-reliance."

TDK's relationship with MIT has gone far beyond simply dispatching visiting scientists to Cambridge to obtain new knowledge and contacts. With an assist from the ILP, the company also collaborated with MIT researchers to conduct highly advanced technology development programs. The company jointly developed Three-Dimensional Printing (3DP) technology with Professors Michael Cima and Emanuel Sachs, as well as a research project on Magnetic Random Access Memory (MRAM) with Professors Caroline Ross and Henry Smith." To get these joint projects off the ground, the ILP provided research proposals from MIT faculty and arranged MIT/TDK meetings in Cambridge and Japan. "The proposals included critical information such as faculty profiles, facility requirements, and manpower and cost estimates," says Sumita, "and the meetings helped establish a mutual understanding on project goals. Without this support, these joint projects could have quickly floundered."

Sumita envisions more of these partnerships in the foreseeable future. "As globalization advances, joint development between industry and academia may make even more sense economically," he argues. "The ILP could play a significant role in helping us build and maintain such collaborations."

*For more information about how we can put the resources of MIT to work for you, call the Industrial Liaison Program at 1-617-253-2691, e-mail us at [liaison@ilp.mit.edu](mailto:liaison@ilp.mit.edu), or visit <http://ilp-www.mit.edu/>.*

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