Industry

BARC's Nuclear

Bhabha Atomic Research Centre (BARC) continues to make a positive impact on the country's overall technology landscape through sustained transfer of new and advanced technologies, for the benefit of Indian industry. In the previous year itself, BARC inked a total of 188 agreements with the industry players for transfer of more than 105 nuclear spin-off technologies. Besides, it has introduced around 20 new technologies encompassing chemical, radiation, agriculture and bio-science domains for targeted commercial production.

Tapping Hydrogen Energy

BARC transfers its workhorse Alkaline Water Electrolyser Technology to PSU major BHEL

The technology for production of hydrogen energy from alkaline water through electrolysis route, developed by BARC, has been picked up by PSU major Bharat Heavy Electricals Limited (BHEL) for deployment in industry. The official agreement towards this end was formally inked at an event organized at BARC Mumbai campus recently. The agreement entails transfer of BARC's 50 kW Alkaline Water Electrolyser (AWE) technology to BHEL, which has concrete plans to up-scale the technology with an aim to explore potential opportunities for the technology's ultimate deployment in sectors such as refineries, fertiliser, steel, transportation, etc.

The BARC developed AWE technology is the only 100% indigenous technology for AWE as on today and intends to support BHEL in its long-term plans for the development of sustainable hydrogen production methods, thereby supporting India's transition towards cleaner energy sources.

The Prototype 0.5MW Alkaline Water Electrolyser cell stack undergoing testing in BARC.

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beckons

Spin-off technologies

Photograph taken during the event organized at BARC to formalize BARC-BHEL agreement for transfer of AWE technology for hydrogen production. The agreement was signed in the presence of (seated from left to right): Jai Prakash Srivastava, Director (Engineering, Research & Development), BHEL, Dr. S. Adhikari, Director (Knowledge Management Group), BARC, K. Ravishankar, Executive Director (Corporate Technology Management and Corp R&D), BHEL, and K.T. Shenoy, Director (Chemical Engineering Group), BARC. Others present during signing ceremony include Daniel Babu P., Head (Technology Transfer & Collaboration Division), BARC and senior officials from the ranks of BARC Chemical Engineering Group.

Advanced instruments for Applied Scientific Research

Scanning Electron Microscope equipped with Thermionic Electron Emitter transferred to industry

A tungsten filament-based SEM which facilitates microscopy & microanalysis of specimen with spatial resolution down to 20nm was developed in BARC. The technological know-how key to manufacturing of this specialized high-end sophisticated instrument has been transferred to a Roorkee-based private firm M/s. Mars Design & Automation Services (MDAS) by BARC. SEM is a popular microscopy & microanalysis instrument that uses a finely focused electron beam probe to simultaneously image morphology and carry out compositional analysis of bulk specimen surface. It finds wide applications in all disciplines of science & engineering and is an indispensable tool for material and alloy characterization, mineral characterization & geology, membrane and powder metallurgy, pharmaceutical research, semiconductor development and bioscience to name a few. Despite tremendous demand in India, the instrument currently has no indigenous manufacturers, which hampers cost-effective and customized availability of the instrument in the country. BARC developed indigenous SEM technology is envisaged to become a potential cost-effective import-substitution for Indian institutions of higher education, research laboratories and industries.

Tungsten filament-based SEM developed in BARC

Photograph taken during an event organized in BARC to formalize the agreement for transfer of SEM know-how to Roorkee-based firm MDAS. The agreement was signed in the presence of (seated from left to right): Dr. Raghvendra Tewari, Director (Materials Group), Shrikant Vidwans, Representative, M/s. MDAS, Dr. S. Adhikari, Director (KMG), Dr. S. Mukhopadhyay, Director (E&IG), BARC.