India commits over 7 million Euros as co-partner in Elettra 2.0 in Italy for development of next-generation synchrotron beamlines: Dr. Jitendra Singh

India to invest in advanced research infrastructure and human resource development over five years from 2026-27

Upgraded facilities to expand research opportunities in Chemistry, Physics, Advanced Materials and Structural Biology

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India has reaffirmed its commitment to advanced international scientific collaboration by announcing its participation as a co-partner in the redevelopment of research beamlines at Italy's Elettra Sincrotrone Trieste under the Elettra 2.0 programme, with an investment commitment of more than 7 million Euros over the next five years beginning 2026-27.

The announcement was made by Union Minister of State (Independent Charge) for Science & Technology and Earth Sciences, Dr. Jitendra Singh, during his visit to Elettra Sincrotrone Trieste on November 13, 2026. India's participation will support the development of research infrastructure and human resource capacity, marking a significant new phase in the longstanding scientific partnership between India and Italy.

The upgraded facilities will open new avenues for research in Chemistry, Physics, Advanced Materials, Structural Biology and other scientific areas, benefiting researchers from India as well as other countries.

India's participation in Elettra 2.0 builds on more than 25 years of scientific collaboration between Indian research groups and the Italian facility. Indian scientists have been conducting research experiments at Elettra since 1998 and continue to utilise its facilities. India is currently the second-largest user of Elettra after Italy, reflecting the sustained engagement of its scientific community with the facility.

The extent of this engagement is also evident from the more than 1,100 experimental proposals received by Elettra from Indian research groups. India ranks second in the number of proposals submitted, after Italy, which submitted 54,140 proposals, and ahead

of France, with 1,098 proposals.

Under the Elettra 2.0 programme, the existing India-centric XRD2 and Xpress beamlines will be decommissioned and replaced by two new beamlines with enhanced capabilities. These will comprise a microfocus beamline for macromolecular crystallography, to be called micro-XRD (μXRD), and a beamline for high-pressure diffraction, to be called Xpress Superbend (Xpress-SB).

The redevelopment represents a continuation of India's earlier investment in dedicated research infrastructure at Elettra. The Department of Science and Technology (DST) had jointly supported the construction of the two existing sophisticated diffraction beamlines, XRD2 and XPRESS, with a contribution of approximately Rs. 22 crore, alongside the Italian side. Both beamlines were jointly inaugurated on October 20, 2016, during the visit of the Secretary, DST, to Italy.

Since their commissioning, these beamlines have been effectively utilised by Indian researchers, with approximately 50-60 Indian scientists visiting Trieste every year to conduct research experiments at the facility.

The Department of Science and Technology has also supported Indian researchers' access to Elettra through the Indo-Italian Executive Programme of Cooperation (EPOC). Under EPOC 2022-2024, DST sanctioned Rs. 2 crores over three years to support visits by 50 Indian researchers annually, with 25 visits in each semester, for conducting experiments against allocated shifts at Elettra beamlines.

The EPOC 2025-2027 also includes a proposal to support Indian researchers in conducting experiments at the facility, with a proposed allocation of Rs. 1.5 crore over three years.

DST had already conveyed its agreement to participate in the redevelopment of the India-centric beamlines under Elettra 2.0, and a Letter of Intent (LoI) had been signed in this regard. During the visit, India reaffirmed its commitment to the Elettra 2.0 initiative through the announcement of its investment commitment of more than 7 million Euros over five years.

The Indian participation will build upon the experience gained through the successful development and utilisation of the existing beamlines and support the creation of upgraded research infrastructure for the next phase of scientific collaboration between the two countries.

Through its participation in Elettra 2.0, India will continue to strengthen its engagement with the Italian research facility, while supporting expanded opportunities for Indian and international researchers in advanced and specialised areas of scientific research.









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