Ion Source Inaugurated during Italian State Visit to ESS

15 NOVEMBER 2018

LUND - Today, at the European Spallation Source (ESS) in Lund, the King and Queen of Sweden together with the Italian President Sergio Mattarella inaugurated the Ion Source, designed and built in Italy. It is the first major technical component commissioned at ESS. The visit to ESS, part of a three-day State Visit to Sweden, took place in the presence of the Swedish Minister for Higher Education and Research, Helene Hellmark Knutsson, and the Italian State Secretary for Foreign Affairs and International Cooperation, Senator Ricardo Antonio Merlo.

The King Carl XVI Gustaf and Queen Silvia arrived at ESS with President Mattarella and his daughter Laura in the morning. They were welcomed by Lars Börjesson, Chair ESS Council, John Womersley, ESS Director General, and Speranza Falciano, Vice President of ESS Italian partner INFN (National Institute for Nuclear Physics), before getting an overview of the ESS construction site from the viewing deck.

"We are honoured to welcome the Italian President and Their Majesties to ESS today. ESS is a European research facility that will be world-leading of its kind, of which Italy is a committed member country, and a good example of Italy's long-standing commitment to European collaboration within science and technology," said Lars Börjesson, Chair ESS Council. "Italy and Sweden, together with the other member countries, work to ensure that ESS will be a world-class research and innovation centre for scientists from all over the world."

After a brief presentation about the ESS project held by John Womersley, the prominent guests and the large Swedish and Italian delegations were transferred to the Accelerator Tunnel and the Front End Building, which houses the Ion Source and the LEBT (Low Energy Beam Transport). Applauded by the audience, the King and the President officially inaugurated the Ion Source by pulling aside a curtain to mark the first commissioning of a major technical component at ESS.

"ESS is a European flagship for science and innovation, built upon critical contributions from partners all over Europe," said John Womersley, ESS Director General. "The commissioning of the Ion source is a key milestone for the project and demonstrates the excellent collaboration with our Italian in-kind partner INFN-LNS, who have delivered a technological masterpiece to ESS."

The multi-disciplinary research facility ESS, currently under construction in Sweden, will be the world's most powerful neutron source when it opens for researchers in 2023. ESS will provide unique research opportunities for thousands of scientists in a wide range of areas, such as materials technology, energy, life science and cultural heritage. ESS member countries fund and build the research infrastructure together, partly by in-kind contributions through technical equipment, services and personnel. The Italian in-kind contributions to ESS are coordinated by the research institute INFN, internationally recognised for its scientific and technical expertise in particle accelerators. The Ion Source and LEBT now commissioned has been designed and built by ESS' in-kind partner INFN-LNS in

Catania (Sicily). Other in-kind partners have also contributed, notably CEA-IRFU (France), who delivered beam instrumentation and control systems. INFN-LNS started to design the ESS Ion source in 2012.

“Thanks to its expertise and experience, INFN, with effective teamwork led by the Southern National Laboratories, has brought a contribution of excellence to ESS, “ said Speranza Falciano, vice president of INFN. “The advanced technologies necessary for the realisation of the Ion source and LEBT constitute an innovation opportunity in frontier physics research where the Italian industry involved in the project delivered once again."

ESS’ linear accelerator will deliver a high intensity proton beam to a target, where the neutrons to be used for science are generated. The process starts in the Ion Source, at the far end of the Accelerator, where plasma is produced by heating hydrogen gas with electromagnetic fields - like a microwave. From this plasma, protons are extracted with a high-voltage, and led into the first part of the Accelerator, the LEBT, where beam diagnostics, optimisation and focusing of the proton beam take place before acceleration begins in the next part of the Accelerator, the Radio Frecuency Quadropole (RFQ), to be delivered by French in-kind partner CEA in 2019.

During the visit to ESS, the Italian President and the Swedish King and Queen also took a few minutes to shake hands with the 22 Italian staff working at ESS and the Accelerator team that has been involved in the installation and commissioning of the Ion Source since the delivery at ESS in December last year.

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About ESS
The European Spallation Source is a Partnership of European Nations committed to the goal of collectively building and operating the world's leading facility for research using neutrons. ESS will enable scientific breakthroughs in research related to materials, energy, health and the environment, addressing some of the most important societal challenges of our time. The main facility is under construction in Lund, Sweden, and the user programme for research will begin in 2023.
europeanspallationsource.se

About INFN
The National Institute for Nuclear Physics (INFN) is the Italian research agency dedicated to the study of the fundamental constituents of matter and the interactions that regulate their behaviour, under the supervision of the Ministry of Education, Universities and Research (MIUR). It conducts theoretical and experimental research in the fields of subnuclear, nuclear and astroparticle physics.
INFN is a community of 6000 people committed to ensuring that the fundamental research provides its best results. www.infn.it