

Cryomodule for "S1-global" arrived from Italy

A big Christmas gift arrived at KEK from Italy. On 25 December, KEK's Superconducting radiofrequency Test Facility (STF) welcomed the cryomodule for "S1-global" - a crucial system test towards realizing the International Linear Collider (ILC), a proposed next generation electron-positron collider.

"S1" refers to one of the priority task forces (so-called "S" task forces) for ILC R&D, and the object of S1 is the demonstration of an 8-cavity cryomodule operating at an average accelerating gradient of 31.5 Megavolts per meter, the design gradient for the ILC. S1-global at STF will use two half-size cryomodules instead of one full-size ILC design cryomodule. It is called "global" because it combines efforts and equipments from different collaborating laboratories: two superconducting cavities from DESY (Germany), another two from Fermilab (U.S.), and four from KEK. They will be installed in two cryomodules, each six metres long: a new one designed and constructed in cooperation between Italy's INFN (Istituto Nazionale di Fisica Nucleare) and KEK. It has just arrived and will be assembled with another STF cryomodule existing at KEK in a coming half year.

Such effort to integrate different pieces of equipment into one combined system test will be a useful exercise in verifying the "plug-compatibility concept". "Plug compatible" is a term commonly used in the manufacturing or computer industry: to design the hardware to be interchangeable with another vendor's product, even though internal details may differ. This concept, as applied to the ILC design, will allow for differences that best suit variations that result from local conditions, innovation and optimization.

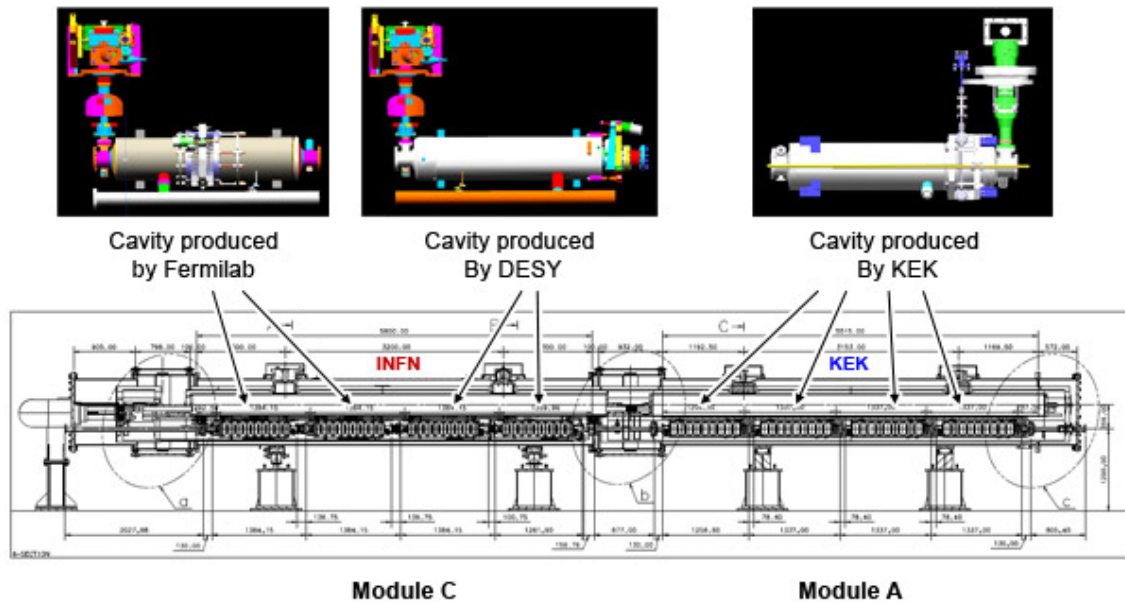
The S1-global cryomodule design work started in May 2008, and all the components for the program will be lined up at STF soon. Assembly will start in the second week of January in cooperation with scientists/engineers from Fermilab and DESY, and the cold tests are scheduled from June to December 2010.

Related links:

- [ILC - GDE - Director's Corner - 15 January 2009 - Plug compatibility: rationale and technical aspects addressed](#)
- [Plug Compatibility \(PDF\)](#)
- [ILC - GDE - Director's Corner - 9 October 2008 - Preparations for S1-global at the STF at KEK](#)
- [ILC - GDE - Director's Corner - 28 February 2008 - A plug-compatible approach toward a truly efficient international collaboration](#)



Italian made cryomodule being taken out from the container at Superconducting radiofrequency Test Facility (STF) at KEK.



The layout for S1-global system test. Module C produced by INFN will contain two cavities from Fermilab and another two from DESY, and STF's Module A four KEK cavities.