

# Process design and calculation of DALS test facility cryogenic system using Ecosimpro

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The Dalian advanced light source (DALS) is a new FEL project based on SRF technology. The DALS test facility is used to test the key components of DALS, which requires a 370 W @ 2 K cryogenic system and is expected to be completed by end of this year. Dynamic simulation is often used in the cryogenic system process design and control logic optimization, it also plays a very important role in the process calculations during design phase. This paper introduces the method of process calculation using software Ecosimpro. Key components such as thermal shield, SRF cavity and cryomodule are modeled based on Ecosimpro platform. Main operation modes including steady state operating mode, cooldown mode and safety relief mode are simulated, the simulation results were compared with those calculated using Excel and HEPAK software, the dynamic simulation software can be used to obtain more accurate process parameters in dynamic processes such as cooldown, safety relief, which is favorable for the design of cryogenic system and selection of components.

## Submitters Country

China

**Author:** SUN, ZHENG (Dalian Institute of Chemical Physics)

**Co-authors:** Ms XU, Lei (Dalian Institute of Chemical Physics); HU, Liangbing; WANG, Xilong (Dalian Institute of Chemical Physics, Chinese Academy of Sciences (DICP, CAS)); SHI, Xu (Dalian Institute of Chemical Physics, Chinese Academy of Sciences (DICP, CAS)); WANG, Yaqiong (Institute of Advanced Science Facilities)

**Presenter:** SUN, ZHENG (Dalian Institute of Chemical Physics)

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