

Ritendra Bhattacharya



Ritendra Bhattacharya has worked in large-scale cryogenics for the past twenty-two years. As deputy department head of the Cryogenics department at the U.S. Department of Energy's Thomas Jefferson National Accelerator Facility (TJNAF), Bhattacharya is contributing with a focus on cryogenic engineering and projects. He started at the TJNAF with the Linac Coherent Light Source (LCLS-II) project in 2017, working on cryogenic plants. His department delivered two identical cryogenic refrigerators and 2K cold boxes, including auxiliaries for the LCLS-II project. He supported the LCLS-II team to complete the cryogenic system commissioning and testing.

Bhattacharya led the End Station Refrigerator-2 (ESR2) project at the TJNAF. The ESR2 plant is now delivering cryogens to experimental halls, replacing a 45+ years old ESR1 cryoplant. The ESR2 refrigerator/liquefier, turbine pods, and helium compressors were originally built for the Superconducting Super Collider Laboratory (SSCL) in early 1990, and the TJNAF cryogenic team is pleased to reuse an old cryogenic system with a significantly less run time.

Bhattacharya is leading an upgrade project for the TJNAF cryogenic test facility. The project completed commissioning the new valve box, transfer line, and distribution box and continued the in-house fabrication of a 35K shield refrigerator.

Bhattacharya is happy to start leading the replacement of the 2K Cold Box for the Spallation Neutron Source (SNS) at Oak Ridge National Laboratory recently. The project recently completed the conceptual design phase.

In 2002, Bhattacharya started his passion for cryogenics at India's Institute for Plasma Research [IPR]. Even today, he is excited when he looks back to the old days of cryogenic system commissioning and various component cold testing for the Steady State Superconducting Tokamak [SST-1] at IPR in India.

When India joined the seven-country funded ambitious ITER project back in 2006, he started working on the distribution side of ITER cryogenic. Eventually, he progressed to lead the overall Indian cryogenic in-kind contribution to ITER. One of his remarkable contributions was leading the delivery of the largest supercritical helium mass flow-producing cold circulator for the ITER cryogenic distribution system after two competing industrial custom-made designs built by industrial partners. He also led the cold validation testing of these two cold circulators at the Japan Atomic Energy Agency's facility. He helped select one cold circulator out of two for the ITER project.

Bhattacharya is a life member of the Indian Cryogenic Council and a professional member of the Cryogenic Society of America. He worked on and hosted the 24th National Symposium on Cryogenics (NSC-24) at IPR, India, with more than 500 national and international participants. He also worked as one of the guest editors for the NSC-24.

Bhattacharya has co-authored several publications on several topics in cryogenic engineering and participated in cryogenic conferences and workshops over the last 22 years. He has peer-reviewed several conference and journal manuscripts. He worked as a project review panel member for several projects, including SPARK cryogenic, EIC cryogenic, and DUNE Near Detector Cryogenics project.