

## **Remote handling of RIB targets at ISAC**

C. Mark, M. Gallop, D. Jackson, J. McKinnon

*TRIUMF, 4004 Wesbrook Mall, Vancouver, British Columbia, Canada*

Planning for the safe handling of radioactive ion beam production targets at ISAC was fundamental to the conceptual designs applied for the Target Modules, Target Stations, transport crane, hot cells and even the Target Hall itself. Given the large physical dimensions of the ISAC Target Modules the use of conventional shielded transport flasks was impractical. This decision necessitated the use of a fully remote operable crane and sufficient concrete shielding in the building walls to permit the safe transfer of unshielded targets within the Target Hall. A conventional, industrial overhead crane was specified to have unique requirements for high reliability redundant drive operation, reduction of radiation damage to components and fully remote operation assisted by CCTV. Fe/Concrete shielding blocks installed over the operational of the two target stations are removed manually by crane to access the module services below. Sufficient shielding in the modules over the beam elevation allows for the use of organic insulators and seals, while also allowing personnel hands-on access to service connections. A hot cell facility located at one end of the hall and vertically accessible to the overhead crane allows remote transfer of modules and targets. Target cassette exchange and spent target packaging is performed in the hot cell using master-slave manipulators. Details of the target hall design, remotely operated crane specification, procedures for target handling, and contamination control will be presented.