

# Upgrade of the accelerator facility in 2019

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The Research Center for Nuclear Physics has an accelerator facility equipped with an AVF cyclotron and a ring cyclotron. It supplies ion beams and RIs for joint usage and research with domestic and foreign research institutions and enterprises. In recent years, the frequency of short-lived RI production and use of secondary particle beams such as neutrons, muons, and unstable nuclei has been increasing. In addition, the frequency of serious failures due to aging for almost 50 years has increased. Therefore, upgrade work on the accelerator facility has begun in 2019 to revive the AVF cyclotron and improve the performance and functionality so that it can supply high-quality beams with higher intensity. In 2019, renovation of the accelerator facility building and mechanical and electrical equipment was mainly implemented.

In the building renovation work;

1. extension of the shielding wall has been partially done to enhance shield performance against increase of beam intensity.
2. installation of mazes, updating and overhauling of the shielding doors in experimental rooms to improve the safety system.
3. installation of an additional 5-ton crane and speeding-up of the main unit crane in the AVF cyclotron vault to improve maintainability of the accelerator.
4. raising the ceiling of the AVF cyclotron vault, and renovating the ceiling, walls and floor of all the rooms in the AVF cyclotron building.
5. repairing the exterior and renewal of waterproofing sheets of the AVF cyclotron building.

In mechanical and electrical equipment renovation work;

- a. RI drainage equipment was improved
- b. water cooling towers of the AVF cyclotron was renewed
- c. building air conditioning facility was partially renovated
- d. lighting and switchboards in the all rooms of the AVF cyclotron building, distribution boards, network equipment, emergency generators, etc. were updated.

These construction and renovation were completed successfully in February 2020, and full-scale operation of the accelerator facility has now begun. In 2020, renewal of the AVF cyclotron equipment will be proceeding.

