

K500 operations and development

D. P. May, G. J. Kim, H. L. Clark, and F. P. Abegglen

Introduction

During the 2009-2010 reporting period a total of 29 different beams, including 9 newly developed beams, were used for experiments, and there were a total of 43 beam tunings for these experiments. The SEE program will be treated separately.

Ion Sources

During the January shut-down ECR1 was opened for examination and cleaning. There had been no further deterioration in the damaged spot that had developed over a plasma flute on the aluminum wall. It had been noticed and compensated for in 2008.

Cyclotron Beams

New beams of ^{14}N at 18 AMeV, ^{24}Mg at 12 AMeV, ^{28}Si at 15 and 35 AMeV, ^{40}Ar at 5.4 and 5.6 AMeV, ^{52}Cr at 5 AMeV, and ^{58}Ni at 15 and 35 AMeV were developed.

Operations

For the period April 1, 2009 through March 31, 2010, the operational time is summarized in Table I, while Table II lists how the scheduled time was divided. While the unscheduled maintenance was much less than the last reporting period, there were several repairs that caused loss of beam-time. In November the coaxial line from the "B" final-stage rf amplifier was severely damaged because a signal-loss detector was accidentally disabled, resulting in two days of lost beam-time. In February a mistake was made in the reassembly of the E2 deflector high-voltage feed-through after the annual shut-down that resulted in a week of lost time to diagnose and repair. Finally, in March two days were lost to a failed rf coupler and an rf water-cooling leak.

TABLE I. 2009-2010 Operational Time

Time	Hrs.	%Time
Beam on target	6145.50	80.7
Tuning, optics, set-up	92.50	1.2
Beam development	1043.25	13.7
Scheduled maint.	17.50	0.2
Unscheduled maint.	321.25	4.2
Idle time	0.00	0.0
Total	7620.00	100.0

TABLE II. 2009-2010 Scheduled Beam Time.

Time	Hrs.	%Time
Nuclear physics	1894.25	25.3
Nuclear chemistry	893.50	11.9
Atomic physics	272.00	3.6
Outside collaboration	0.00	0.0
Outside users	3264.50	43.3
Beam development	1188.25	15.9
Total	7494.50	100.0