

K500 operations and development

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

Introduction

During the 2015-2016 reporting period a total of 31 different beams, including 15 newly developed beams, were used for experiments, and there were a total of 37 beam tunings for these experiments. The SEE program and the charge-breeding effort are treated separately in this progress report.

Ion Sources

During the shutdown ECR1 was opened for examination, and it was found that there had been no further deterioration in the damaged spot that had developed over a plasma flute on the aluminum wall..

Cyclotron Beams

New beams of ^3H D at 24 AMeV, ^4He at 24 AMeV, ^6DHe at 12 AMeV, ^7Li at 24 AMeV, ^{10}B at 18.2 and 19.2 AMeV, ^{14}N at 55 AMeV, ^{16}O at 14 AMeV, ^{28}Si at 45 AMeV, ^{78}Kr at 15 and 25 AMeV, ^{84}Kr at 14 AMeV, ^{86}Kr at 15 and 25 AMeV were developed for experiments. In addition, a beam of ^{85}Rb at 14 AMeV was developed using the charge-breeding ECR3 ion source for a light-ion-guide (LIG) test.

Operations

For the period April 1, 2015 through March 31, 2016, the operational time is summarized in Table I, while Table II lists how the scheduled time was divided.

Table I. 2015-2016 operational time.

Time	Hrs.	%Time
Beam on target	6400	73
Beam development	800	9
Scheduled maintenance	1093	13
Unscheduled maint	443	5
Total	8736	100.0

Table II. 2015-2016 Scheduled Beam Time.

Time	Hrs.	%Time
Nuclear physics	1190.0	16.5
Nuclear chemistry	1509.5	21.0
Outside collaboration	0.0	0.0
Outside users	3700.5	51.4
Beam development	800.0	11.1
Total	7200.0	100.0