I
TANDEM

Tandem Operation

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In 1998 the tandem accelerator logged 7508 hours of operation. Operating statistics are shown in fig. 1 and table 1. There were no great technical difficulties. Only a tank feed through of the pelletron charging system was punctured by overvoltage. We are still testing different insulator shapes and materials to overcome this problem.

Maintenance periods were scheduled for various preventive measures: We replaced half the idler wheel bearings of the charging chains, the other half will follow next year. The bearings of the power shaft were lubricated as every two years. The stripper mechanism and control was reconstructed to make it more reliable. We replaced the vertical steerer at the high energy end of the accelerating tube with a more powerful one. Two deflection magnets in the beam transport system were equipped with new power supplies. Finally, wiring and cooling water tubes of the beam transport system were serviced.

For the accelerator control system new interfaces connecting our Open Network Forth to Microsoft Access and Visual Basic were made by FORTecH Software, Rostock. Now we are updating our applications. The update of the beam setup program calculating the initial values for the tandem and the beam transport system is finished, we had only to modify the modules with access to the machine. A new log book program using Microsoft Access was developed, including also a module to set up the machine with data logged earlier. The control desk with graphic presentation of the equipment is still in the development stage. A first version showing the overview of our machine and indicating the actual beam position is already in operation.

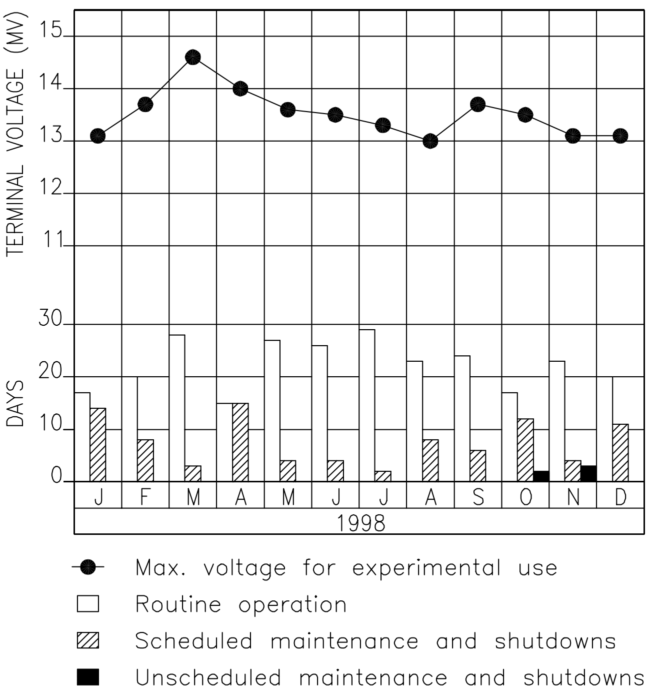

Fig. 1: Operating statistics

ION	^{1}H	^{2}H	$^{2}\overrightarrow{\mathrm{H}}$	^{4}He	^{9}Be	^{12}C	^{26}Al	^{32}S	^{36}S
PERCENT	13.0	7.0	7.8	3.8	1.3	2.0	3.8	10.1	2.0
ION	^{48}Ti	^{50,52}Cr	^{58,60}Fe	^{58}Ni	^{63,64}Ni	^{127}J	^{197}Au	^{232}Th	OTHERS
PERCENT	1.2	2.4	1.4	10.3	4.0	16.0	7.7	1.0	5.2

Table 1: 1998 ion beam time