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Reliability issues at the accelerator facility of iThemba LABS

A variable energy K200 separated sector cyclotron and its two associated injector cyclotrons at iThemba LABS have been utilized for radioisotope production, nuclear physics research, and proton and neutron therapy for nearly 25 years. For proton therapy a 200 MeV proton beam is used. For neutron therapy and radioisotope production a 66 MeV proton beam is available. Low intensity beams of light and heavy ions as well as polarized protons are available for nuclear physics research. Beams are delivered to the different user groups for 24 hours per day and seven days per week. During recent years extensive development work has been carried out on these machines to improve the intensity, quality and variety of the beams for basic and applied research, particle therapy and radioisotope production. The aging systems now require continual upgrading and replacement to limit interruptions to the scheduled beam delivery. The status of the facilities as well as an analysis of beam interruptions and methods taken to improve the reliability of the facility will be presented.

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