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## Injection Line Studies for the SPC2 Cyclotron at iThemba LABS

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The transmission efficiency of some ion beams through the second solid-pole injector cyclotron (SPC2) at iThemba LABS requires improvement. In order to understand the beam optics in the injection line, and match the beam to the acceptance of the cyclotron, the beam envelope behavior from the beginning of injection-line to the inside of the SPC2 cyclotron was investigated with different simulation programs. The transverse effects were taken into account by the beam transport codes TRANSPORT and TRANSPORT, while the multi particle simulation code OPAL was used to include space-charge effects. Simulations of the effect of an additional buncher, operating at the second harmonic, on the transmission of the beam of charged particles through the cyclotron were made.

**Apply to be considered for a student award (Yes / No)?**

No

**Level for award (Hons, MSc, PhD, N/A)?**

N/A

**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

NO

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