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Search for chirality in ^{193}Tl

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Abstract content (Max 300 words) **Formatting & Special chars**

Based on the theoretical description of chiral symmetry in nuclear system by Fauendorf and Meng, some chiral doublet bands were suggested in different mass regions. It was revealed at iThemba LABS that Tl isotopes form a new region

where chirality could develop. In particular ^{194}Tl was found to be perhaps the best chiral candidate up to date. ^{193}Tl as a neighbour of ^{194}Tl is thus likely to be a very good chiral candidate. In order to search for possible chiral doublet bands in ^{193}Tl , an experiment was performed using the $^{160}\text{Gd}(^{37}\text{Cl},4n)$ reaction. The analysis showed that two aside bands could be chiral partners to Band 2. However, statistics were not enough to determine the linking transitions and their

spin and parity assignments. Thus, another experiment was performed using the reaction of $^{181}\text{Ta}(^{18}\text{O},6n)$ which has much larger cross-section for production of ^{193}Tl . The faster digital electronics was also employed. Alternatively:

The new data set has much larger statistics. Analysis for these new data is in progress. The results obtained so far will be presented.

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

Yes

Level for award (Hons, MSc, PhD)?

PhD

Main supervisor (name and email) and his / her institution

Prof. S.M. Wyngaardt, Stellenbosch University

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

Yes

Primary author: Mr NDAYISHIMYE, Joram (Stellenbosch University)

Co-author: Dr LAWRIE, Elena (iThemba LABS)

Presenter: Mr NDAYISHIMYE, Joram (Stellenbosch University)

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