

Time optimization of the CYGNO reconstruction algorithm for the Trigger system

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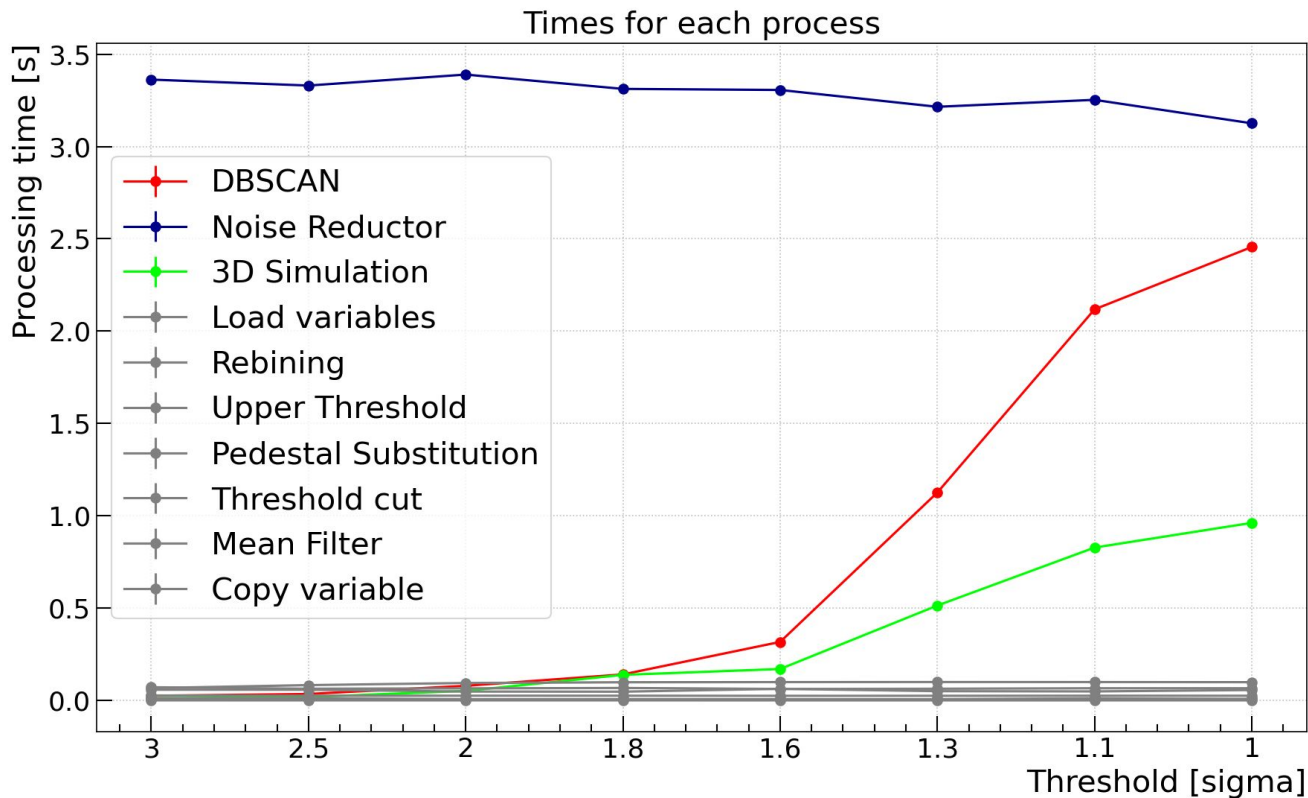
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Summary

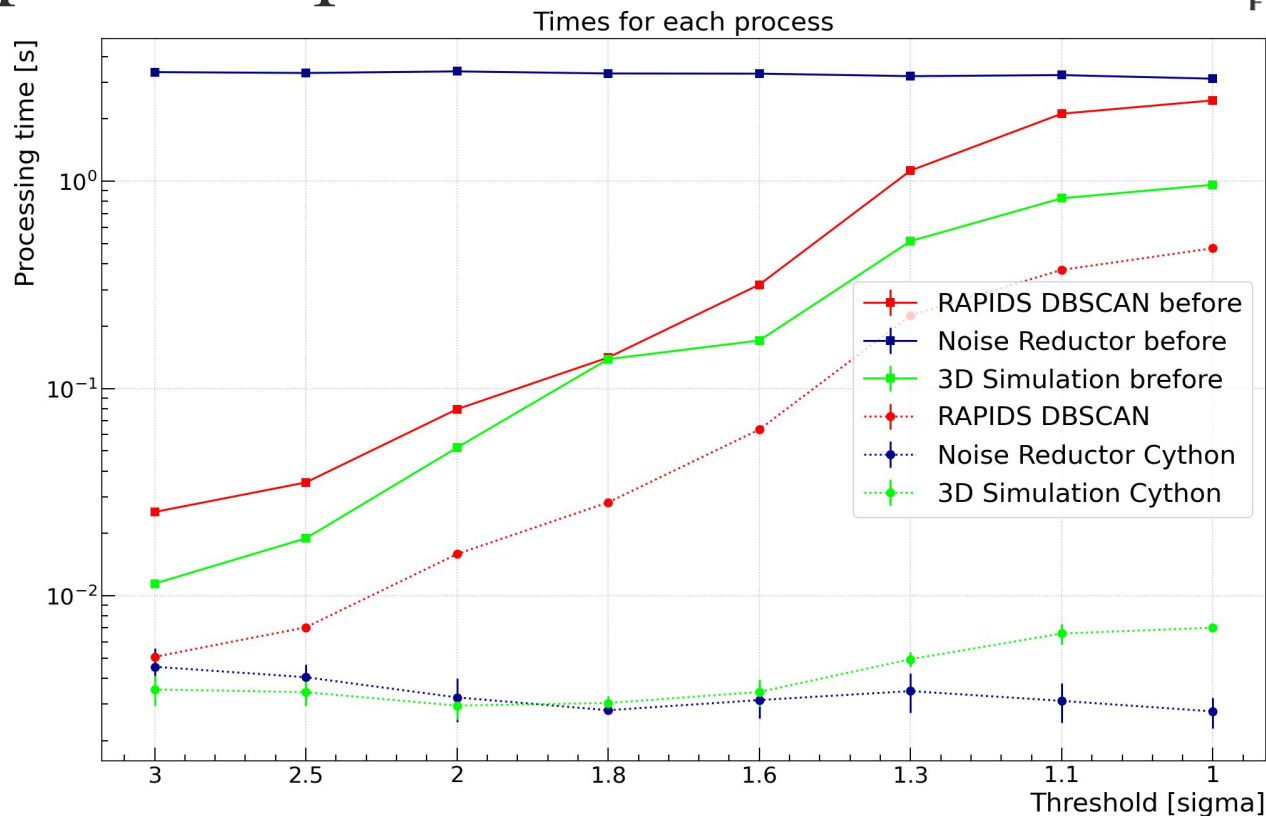
- Recap
- Fe-55 comparison
- Conclusion

Recap

- In our last meeting, we timed some process in the reconstruction steps in order to bottlenecks and check the possibility of applying those processes to the trigger;
- After some optimizations, it was suggested to reconstruct the results from the Fe-55 spectrum and compare results and times.



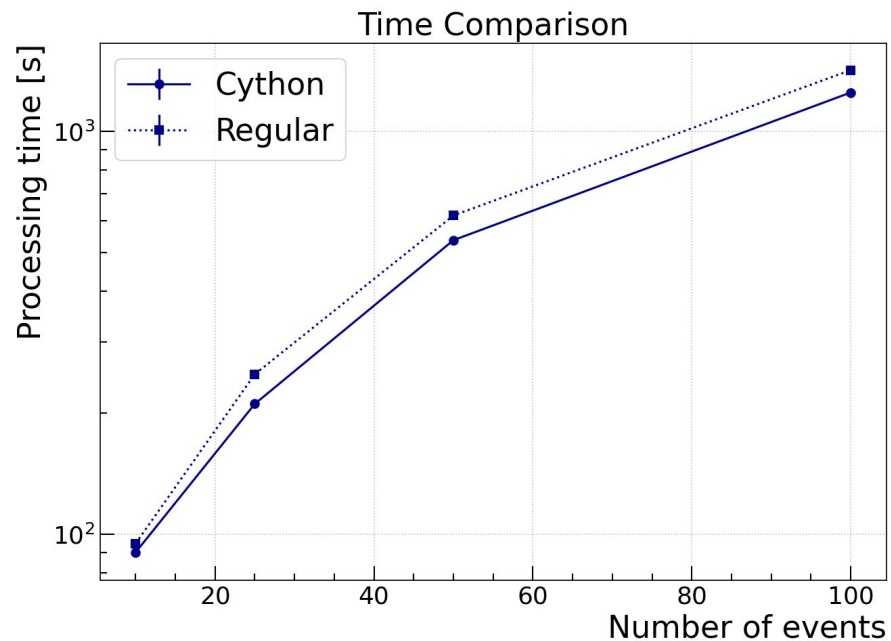
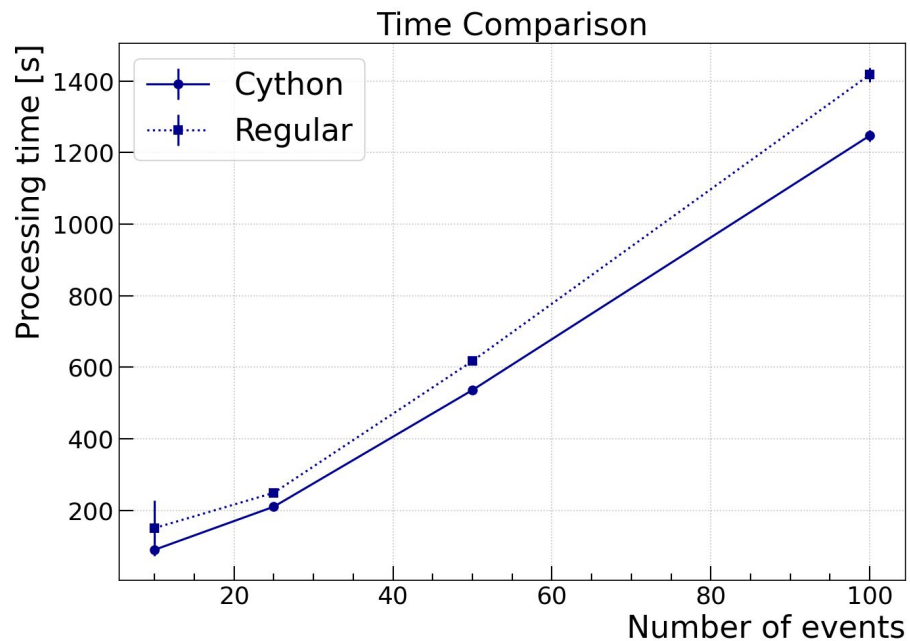
Recap - Time plots



Fe-55 Comparison

- For the Fe-55, running on a Colab instance, with only cython optimizations, we had a 15% decrease in total time with the **same results**;
- Tests were performed for 10, 25, 50, 100, 150 and 200 events;
- A graphical representation for the results can be seen in the next slide.

Fe-55 Comparison



Conclusion

- This Cython optimization could be used in reconstruction today;
- Although a good enhancement for the offline reconstruction, we should think a more optimal approach for the software trigger;
- Maybe a more primitive reconstruction-like algorithm could be proposed;