# ctools - Feature #2662

## ctlike/ctulimit tolerance

08/15/2018 05:02 PM - Sokolenko Anastasia

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|---|---|---|---|
| **Status:** | Closed | **Start date:** | 08/15/2018 |
| **Priority:** | Normal | **Due date:** | |
| **Assigned To:** | Knödlseder Jürgen | **% Done:** | 100% |
| **Category:** | | **Estimated time:** | 0.00 hour |
| **Target version:** | 1.6.0 | | |

**Description**

We noticed that for a weak dark matter signal above CR background, ctlike and ctulimit return results too good to be true in comparison with a simple signal/noise estimation for 500 hours of simulated data.
Artificial reduction of time (to have no more than 1e4 photons in 10% broad energy bin) seems to solve the issue. Therefore, the issue connected to numerical accuracy.

It seems that in some cases, especially for the long observational time, default fitting/integration precision is not sufficient.
It will be good to be able to control the fitting/integration tolerance with e.g. the additional hidden parameter for ctlike/ctulimit even by the price of a potentially significant increase of the computational time.

### History

**#1 - 09/07/2018 05:09 PM - Knödlseder Jürgen**

*- Assigned To set to Knödlseder Jürgen*

*- Target version set to 1.6.0*

We can add the fit tolerance as a hidden parameter. It would be good if you could provide a specific test case that reproduces your problem to see whether fit tolerance is actually the issue.

**#2 - 09/11/2018 11:29 AM - Knödlseder Jürgen**

*- Status changed from New to Pull request*

*- % Done changed from 0 to 100*

I added a like_accuracy parameter to all tools and scripts that do maximum likelihood fitting. I will now merge the code into devel.

**#3 - 09/11/2018 01:55 PM - Knödlseder Jürgen**

*- Status changed from Pull request to Closed*

Code is integrated in devel branch.