# GammaLib - Bug #2022

## Likelihood optimization stops in case of small step size

04/26/2017 11:40 AM - Knödlseder Jürgen

Status:	Closed	Start date:	04/26/2017
Priority:	Normal	Due date:	
Assigned To:	Knödlseder Jürgen	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	1.3.0		
Description			
The likelihood iterations eventually stop when the parameter boundaries lead to a small step size since the likelihood increment for a small step size becomes tiny. Here an example:			
2017-04-25T13:34:23: +====================================			
2017-04-25T13:34:23:   Maximum likelihood optimisation			
2017-04-25113.34.23. +====================================			
2017-04-25T13:41:43: Parameter "Width" drives optimization step (step=9.52026e-06)			
2017-04-25T13:41:43: Parameter "Width" hits minimum: 0.0002778 < 0.0002778 (1)			
2017-04-25T13:45:07: >lteration 1: -logL=904829.867, Lambda=1.0e-03, delta=0.001, max( grad )=-8612299414181.093750			
[Integral:104]			
2017-04-20110.40.07.			
It probably would be best to scale the convergence threshold with the step size.			

#### History

## #1 - 04/26/2017 12:12 PM - Knödlseder Jürgen

- Status changed from New to In Progress
- Assigned To set to Knödlseder Jürgen
- Target version set to 1.3.0
- % Done changed from 0 to 10

I created a branch 2022-ctlike-iterations-stop where the convergence threshold is scaled with the step size.

## #2 - 04/27/2017 10:31 AM - Knödlseder Jürgen

- Status changed from In Progress to Closed
- % Done changed from 10 to 100

This seems to solve the problem. Code is merged into devel.