

## Issues

| #    | Project  | Tracker | Status      | Priority | Subject  | Assigned To        | Updated             | Target version | % Done |
|------|----------|---------|-------------|----------|--|--------------------|---------------------|----------------|--------|
| 4239 | ctools   | Bug     | Feedback    | Normal   | Mac OS X binary build fails due to access denied exception                                     | Knödlseeder Jürgen | 03/27/2023 05:59 PM |                | 100    |
| 2174 | ctools   | Bug     | New         | Normal   | ctsmasplit does not work properly when it is initialized using an observation container        |                    | 06/04/2022 09:00 PM |                | 0      |
| 3317 | ctools   | Bug     | New         | Normal   | ctbkgcube aborts if no background model is found   |                    | 06/04/2022 08:58 PM |                | 0      |
| 3766 | ctools   | Bug     | New         | Normal   | conda install on Ubuntu 20.04 does not work for Python 3.8                                     |                    | 09/06/2021 12:55 PM |                | 0      |
| 2768 | ctools   | Bug     | New         | High     | ctbkgcube / Polynom RadialAcceptance   |                    | 07/15/2020 08:20 PM |                | 0      |
| 2888 | ctools   | Bug     | New         | Normal   | Enable package build and check on Mac OS X 10.13 and 10.14                                     |                    | 05/14/2019 09:06 AM |                | 0      |
| 2767 | GammaLib | Bug     | New         | Normal   | conda gammalib conflicts with nlesc root   |                    | 12/12/2018 04:24 PM |                | 0      |
| 2697 | GammaLib | Bug     | New         | Normal   | gammalib make checks fails on MacOS  |                    | 11/06/2018 09:48 AM |                | 0      |
| 2291 | ctools   | Bug     | In Progress | Normal   | reading observations from list crashes when there is a blank line at end of a obsdef text file | Knödlseeder Jürgen | 01/25/2018 11:55 PM |                | 0      |
| 260  | GammaLib | Bug     | New         | Urgent   | Ubuntu 12.04: can not locate the readline and ncurses libraries                                | Knödlseeder Jürgen | 01/16/2018 12:41 PM |                | 0      |
| 1870 | ctools   | Bug     | New         | Normal   | TS value of large components   |                    | 08/01/2017 09:48 AM |                | 0      |
| 1869 | ctools   | Bug     | New         | Normal   | ctlike sometimes provides strongly negative TS values  |                    | 08/01/2017 09:48 AM |                | 0      |
| 1561 | GammaLib | Bug     | In Progress | Normal   | Elliptical Gauss model shows fit convergence problems  | Knödlseeder Jürgen | 07/31/2017 11:07 PM |                | 50     |
| 2129 | GammaLib | Bug     | New         | Normal   | make check uses installed library and not the built one  |                    | 06/22/2017 09:48 AM |                | 0      |
| 2000 | ctools   | Bug     | New         | High     | Negative residuals obtained with csresmap  |                    | 05/23/2017 11:22 PM |                | 0      |
| 1370 | ctools   | Bug     | In Progress | High     | ctools 00-08-00 'make check' errors and failed test macros                                     | Knödlseeder Jürgen | 03/13/2017 12:23 PM |                | 50     |
| 1606 | ctools   | Bug     | In Progress | Normal   | ctools make check fails  |                    | 12/19/2015 01:02 AM |                | 10     |
| 1509 | GammaLib | Bug     | New         | Normal   | python unicode strings raise exceptions for c++ methods that require std::string arguments     |                    | 07/09/2015 12:36 PM |                | 0      |
| 1502 | GammaLib | Bug     | In Progress | High     | Memory leak in GCTAObservation on Mac OS X dependent on m_object member placement              | Knödlseeder Jürgen | 07/03/2015 09:24 AM |                | 30     |
| 1352 | ctools   | Bug     | New         | Normal   | Running ctobssim in debug mode gives concurrent output of multiple threads                     |                    | 06/30/2015 11:31 PM |                | 0      |
| 1098 | GammaLib | Bug     | New         | Normal   | Gammalib does not compile on Mac OS X 10.4   |                    | 06/28/2015 08:36 PM |                | 0      |
| 1462 | ctools   | Bug     | New         | Normal   | configure fails if cfitsio library is not found  |                    | 06/03/2015 01:56 PM |                | 0      |
| 1438 | ctools   | Bug     | New         | Low      | root2psf_king() in cta_root2caldb.py produces bad fits   |                    | 03/10/2015 02:42 PM |                | 0      |
| 1385 | GammaLib | Bug     | New         | Normal   | Unable to find shared cfitsio library if directory is not in LD_LIBRARY_PATH                   |                    | 12/11/2014 08:43 PM |                | 0      |
| 1337 | ctools   | Bug     | New         | Normal   | The SWIG interface seems to have trouble with objects returned by value                        |                    | 10/15/2014 07:22 AM |                | 0      |

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|------|----------|---------|-------------|----------|---|-------------------------|---------------------|----------------|--------|
| 1101 | GammaLib | Bug     | New         | Normal   | Unit test fail sporadically   |                         | 01/24/2014 10:32 AM |                | 0      |
| 828  | GammaLib | Bug     | Feedback    | Low      | GLog prepends date in block of text   |                         | 01/22/2014 10:04 PM |                | 100    |
| 1007 | ctools   | Bug     | In Progress | Normal   | ctskymap and ctbin give unhelpful error messages about GSkymap::operator(GSkyPixel&,int&) | Knödlseeder Jürgen      | 11/29/2013 10:34 PM |                | 50     |
| 1000 | GammaLib | Bug     | New         | Normal   | ASCII table has wrong content in second saving of Python unit test                        |                         | 11/21/2013 02:21 AM |                | 0      |
| 901  | ctools   | Bug     | New         | Normal   | Error with Fermi LAT caldb in ctools  | Knödlseeder Jürgen      | 06/13/2013 06:02 PM |                | 0      |
| 688  | GammaLib | Bug     | New         | Normal   | Add type checking rule for 'int []' in GFitsTableCol.i                                    |                         | 01/11/2013 01:23 AM |                | 0      |
| 619  | GammaLib | Bug     | New         | Normal   | Segfault in @GPythonTestSuite.test_value()@   | Knödlseeder Jürgen      | 12/06/2012 12:54 PM |                | 0      |
| 589  | GammaLib | Bug     | New         | Normal   | Run Valgrind on unit tests?   |                         | 12/05/2012 11:04 AM |                | 0      |
| 413  | GammaLib | Bug     | New         | Normal   | Memory conflict when working with GLog clones   |                         | 10/14/2012 03:05 PM |                | 0      |
| 433  | GammaLib | Bug     | New         | Normal   | GammaLib check fails on Solaris using the Sun Studio compiler                             |                         | 08/23/2012 01:47 AM |                | 0      |
| 367  | GammaLib | Bug     | In Progress | Normal   | Registries seem not to work when compiled statically on CentOS                            |                         | 08/20/2012 12:19 AM |                | 10     |
| 358  | ctools   | Bug     | New         | Normal   | openSolaris does not accept -n option in echo command                                     | Knödlseeder Jürgen      | 07/21/2012 11:37 PM |                | 0      |
| 280  | GammaLib | Bug     | New         | Normal   | curses library not correctly detected on openSolaris 11                                   |                         | 07/05/2012 11:31 PM |                | 0      |
| 267  | GammaLib | Bug     | New         | Normal   | FreeBSD requires gmake for compilation  |                         | 07/03/2012 01:39 AM |                | 0      |
| 32   | GammaLib | Bug     | New         | Normal   | GFitsTableLgCol::integer() method is subject to overflow                                  |                         | 02/20/2012 05:19 PM |                | 0      |
| 4209 | GammaLib | Feature | In Progress | Normal   | Study implementation of an alternative BGDPIX algorithm for COMPTEL                       | Knödlseeder Jürgen      | 03/26/2023 01:30 PM | 2.1.0          | 70     |
| 2854 | ctools   | Feature | New         | Normal   | pdf version of documentation  |                         | 06/02/2022 07:57 AM |                | 0      |
| 3990 | GammaLib | Feature | New         | Normal   | Add function to convert sigma for a given number of freedoms to TS value                  |                         | 03/22/2022 11:37 AM |                | 0      |
| 3523 | ctools   | Feature | New         | Normal   | Add to csmodelselect the option to select models for a binned/stacked analysis            |                         | 03/15/2022 12:49 PM |                | 0      |
| 3433 | ctools   | Feature | New         | Normal   | Improve support for source localization and extension fitting                             | Di Venere Leonardo      | 03/15/2022 12:49 PM |                | 0      |
| 3882 | GammaLib | Feature | In Progress | Normal   | Add polarization to interface   | Knödlseeder Jürgen      | 10/20/2021 04:04 PM |                | 10     |
| 3713 | ctools   | Feature | New         | Normal   | Check file extension for output observations  |                         | 05/28/2021 09:57 AM |                | 0      |
| 3608 | GammaLib | Feature | New         | Normal   | Investigate whether HAL HAWC 3ML plugin can be incorporated as new instrument module      |                         | 04/14/2021 03:21 PM |                | 0      |
| 3533 | ctools   | Feature | New         | Normal   | Nuisance parameters   | Hernández Cadena Sergio | 02/16/2021 06:25 PM |                | 0      |
| 3070 | ctools   | Feature | New         | Normal   | Improve support for simulating realistic pointing strategies                              |                         | 07/14/2020 12:13 AM |                | 0      |
| 2455 | GammaLib | Feature | New         | Normal   | Implement a time dependent spectral model   |                         | 12/12/2018 11:37 AM |                | 0      |

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|------|------------------------|---------|--------------|----------|--|--------------------|---------------------|------------------|--------|
| 2731 | ctools                 | Feature | New          | Normal   | Add support of observations with multiple counts cubes to ctmodel  |                    | 11/09/2018 09:33 AM |                  | 0      |
| 2684 | ctools                 | Feature | New          | Normal   | Energy dispersion for Fermi/LAT  |                    | 09/21/2018 10:28 AM |                  | 0      |
| 2382 | GammaLib               | Feature | New          | Normal   | Implement parametric CTA background fitting using splines.   | Buehler Rolf       | 03/07/2018 03:14 PM |                  | 0      |
| 2190 | GammaLib               | Feature | In Progress  | Normal   | Add GammaLib code generator  | Knödlseeder Jürgen | 01/27/2018 05:28 PM |                  | 50     |
| 1935 | ctools                 | Action  | Pull request | Urgent   | Integrate centos_packaging branch  | Knödlseeder Jürgen | 01/23/2018 12:14 PM |                  | 100    |
| 2293 | ctools                 | Feature | New          | Normal   | Add option to ctmodel to integrate expected number of counts over bins   |                    | 12/20/2017 02:31 PM |                  | 0      |
| 1732 | GammaLib               | Feature | Feedback     | Normal   | Work out implications for changing DETX and DETY from sky coordinates to instrument coordinates  |                    | 10/27/2017 10:06 AM |                  | 90     |
| 2143 | ctools                 | Feature | New          | Normal   | ctselect: Galactic coordinates option  | Cardenzana Josh    | 08/02/2017 11:34 AM |                  | 0      |
| 1478 | GammaLib               | Feature | New          | Normal   | Allow for asymmetric parameter errors  |                    | 07/31/2017 11:07 PM |                  | 0      |
| 2132 | GammaLib               | Feature | New          | Normal   | functions to load event lists and irfs from file handle (instead of by filename)   |                    | 07/28/2017 07:56 PM |                  | 0      |
| 2142 | GammaLib               | Feature | New          | Normal   | GGti::exclude(tstart,tstop)  |                    | 07/28/2017 07:30 PM |                  | 0      |
| 2151 | ctools                 | Feature | New          | Normal   | Test file content during the unit tests  |                    | 07/07/2017 11:23 PM |                  | 0      |
| 2131 | GammaLib               | Feature | New          | Normal   | add function to class GHorizDir for skydir->horzdir conversion   |                    | 06/23/2017 12:58 PM |                  | 0      |
| 1602 | GammaLib               | Feature | New          | Normal   | Create GFitsExtension class  |                    | 06/06/2017 10:29 PM |                  | 0      |
| 2067 | LabInvent (InventIrap) | Feature | In Progress  | Normal   | FEATURE/ GENERAL LABINVENT 2   | Ajas Thibault      | 05/04/2017 04:58 PM | SPRINT #2 (v2.6) | 20     |
| 2070 | LabInvent (InventIrap) | Action  | In Progress  | Normal   | EMAILS - Affiner la fonctionnalité d'envoi automatique des emails  | Ajas Thibault      | 05/04/2017 04:58 PM | SPRINT #2 (v2.6) | 25     |
| 2100 | LabInvent (InventIrap) | Action  | In Progress  | Normal   | EMAIL 2 - on doit pouvoir configurer cette fonctionnalité (et l'activer ou la désactiver)  |                    | 05/04/2017 04:58 PM | SPRINT #2 (v2.6) | 0      |
| 2098 | LabInvent (InventIrap) | Action  | Resolved     | Normal   | EMAIL 1 - l'envoi d'emails doit être désactivé par défaut lors de l'installation   | Ajas Thibault      | 05/04/2017 04:56 PM | SPRINT #2 (v2.6) | 100    |
| 2102 | LabInvent (InventIrap) | Action  | New          | Low      | EMAIL 4 - Relance, Rappel d'intervention par email (cf <a href="https://projects.irap.omp.eu/projects/inventirap/wiki/Developpement#Rappel-dintervention-par-mail">https://projects.irap.omp.eu/projects/inventirap/wiki/Developpement#Rappel-dintervention-par-mail</a> ) |                    | 05/04/2017 02:36 PM | SPRINT #2 (v2.6) | 0      |
| 2101 | LabInvent (InventIrap) | Action  | New          | Normal   | EMAIL 3 - (Demande electroniciens) Ca serait bien que le proprio de la fiche reçoive un email quand l'étiquette est imprimée, ou encore quand la fiche est validée (dans le but qu'il vérifie et complète cette fiche)   |                    | 05/04/2017 02:33 PM | SPRINT #2 (v2.6) | 0      |
| 2071 | LabInvent (InventIrap) | Action  | New          | Normal   | install AVEC LDAP - Tester et trouver une solution pour qu'on puisse facilement ajouter une personne du LDAP en tant que superadmin (ou au moins expliquer sur le wiki quelle manip faire pour s'en sortir)  | Ajas Thibault      | 05/04/2017 03:09 PM | SPRINT #2 (v2.6) | 0      |
| 2072 | LabInvent (InventIrap) | Feature | New          | Normal   | FEATURE/ GENERAL LABINVENT   | Ajas Thibault      | 05/04/2017 03:24 PM |                  | 0      |

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| 2068 | LabInvent (Inventrap) | Action  | New         | Normal   | Passage à Php7   | Ajas Thibault   | 05/04/2017 03:23 PM |   | 0      |
| 2069 | LabInvent (Inventrap) | Action  | New         | Normal   | ROADMAP : Terminer de faire ce qui est dans la roadmap et qui est encore d'actualité ( <a href="https://projects.irap.omp.eu/projects/inventirap/roadmap">https://projects.irap.omp.eu/projects/inventirap/roadmap</a> )   | Ajas Thibault   | 05/02/2017 03:44 PM |   | 0      |
| 2033 | LabInvent (Inventrap) | Feature | Resolved    | High     | FEATURE/ GENERAL LABINVENT 1   |                 | 05/04/2017 03:13 PM | SPRINT#1 - amélioration installation (v2.5) | 100    |
| 2045 | LabInvent (Inventrap) | Action  | Resolved    | High     | Pagination - rendre la valeur courante modifiable à volonté et la valeur par défaut configurable   | Ajas Thibault   | 05/04/2017 03:13 PM | SPRINT#1 - amélioration installation (v2.5) | 100    |
| 2042 | LabInvent (Inventrap) | Action  | Resolved    | High     | bugfix - cf fiche buguée avec numéro inventaire IRAP-2070-0001, et date achat 1/1/70, ce qui ne devrait normalement pas être possible !! : <a href="https://inventirap.irap.omp.eu/materiels/view/11790">https://inventirap.irap.omp.eu/materiels/view/11790</a> | Ajas Thibault   | 05/04/2017 03:13 PM | SPRINT#1 - amélioration installation (v2.5) | 100    |
| 2046 | LabInvent (Inventrap) | Action  | Resolved    | Normal   | Installation - configuration pc Windows, installation VM linux, installation projet (2 instances : une version officielle, et une version dev)   | Ajas Thibault   | 05/04/2017 03:12 PM | SPRINT#1 - amélioration installation (v2.5) | 100    |
| 2038 | LabInvent (Inventrap) | Feature | New         | Normal   | FEATURE/ ETIQUETTES (ruban)  |                 | 05/04/2017 03:04 PM | SPRINT #2 (v2.6)                            | 0      |
| 2103 | LabInvent (Inventrap) | Action  | New         | Normal   | Etiquettes - installer etiqueteuse sur Win7 et Win10 et expliquer la procédure sur wiki-install (donner aussi url vers logiciel dymo DLS)  | Ajas Thibault   | 05/04/2017 03:04 PM | SPRINT #2 (v2.6)                            | 0      |
| 2105 | LabInvent (Inventrap) | Action  | New         | Low      | Etiquettes - installer etiqueteuse sur Mac   | Pallier Etienne | 05/04/2017 03:04 PM | SPRINT #2 (v2.6)                            | 0      |
| 2104 | LabInvent (Inventrap) | Action  | New         | Low      | Etiquettes - installer etiqueteuses sur les postes clients   |                 | 05/04/2017 03:04 PM | SPRINT #2 (v2.6)                            | 0      |
| 2061 | LabInvent (Inventrap) | Feature | New         | Normal   | FEATURE/ MATERIEL 2  |                 | 05/04/2017 02:57 PM | SPRINT #2 (v2.6)                            | 0      |
| 2065 | LabInvent (Inventrap) | Action  | In Progress | Normal   | Ajouter un champ "Durée de garantie" sur la fiche matériel, et mettre le nom du pc et date fin garantie en rouge quand il n'est plus sous garantie (sauf si la durée de garantie n'est pas précisée)   | Ajas Thibault   | 05/04/2017 02:57 PM | SPRINT #2 (v2.6)                            | 0      |
| 2063 | LabInvent (Inventrap) | Action  | New         | Normal   | Ca serait bien que le proprio puisse modifier sa fiche, une fois créée, mais aussi même après qu'elle ait été validée. Attention, la modification post-validation ne peut porter que sur les renseignements techniques complémentaires                           | Ajas Thibault   | 05/02/2017 03:19 PM | SPRINT #2 (v2.6)                            | 0      |
| 2035 | LabInvent (Inventrap) | Feature | New         | Normal   | FEATURE/ EMPRUNT   |                 | 05/02/2017 03:40 PM |   | 0      |
| 2036 | LabInvent (Inventrap) | Feature | New         | Normal   | FEATURE/ SUIVI   |                 | 05/02/2017 03:40 PM |   | 0      |
| 2037 | LabInvent (Inventrap) | Feature | New         | Normal   | FEATURE/ AUTHENTIFICATION ET AUTORISATIONS (ACL)   |                 | 05/02/2017 03:40 PM |   | 0      |

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|------|-----------------------|---------|-------------|----------|---|--------------------|---------------------|----------------|--------|
| 2050 | LabInvent (Inventrap) | Action  | New         | Normal   | acl configurables - rendre les autorisations configurables via une table de config dans la BD et un formulaire web permettant de le modifier  | Ajas Thibault      | 05/02/2017 03:01 PM |                | 0      |
| 2062 | LabInvent (Inventrap) | Feature | New         | Normal   | FEATURE/ MATERIEL 3   |                    | 05/02/2017 03:27 PM |                | 0      |
| 2066 | LabInvent (Inventrap) | Action  | New         | Normal   | Pour la partie administrative, la validation doit permettre l'édition de la fiche officielle d'inventaire transmise à la tutelle. Permettre l'édition de cette fiche (demande urgente). | Ajas Thibault      | 05/02/2017 03:27 PM |                | 0      |
| 1998 | ctools                | Feature | New         | Normal   | cssmoothmap - add new tool to implement map smoothing   |                    | 04/11/2017 12:45 PM |                | 0      |
| 1952 | ctools                | Feature | New         | Normal   | ctool for 1d counts vs models profile   |                    | 04/05/2017 07:35 PM |                | 0      |
| 1984 | ctools                | Feature | New         | Normal   | Richardson Lucy algorithm   | Eschbach Stefan    | 04/04/2017 10:40 AM |                | 0      |
| 1974 | ctools                | Feature | New         | Normal   | Use OpenMP to parallelize computation in ctbkgcube  |                    | 03/18/2017 01:01 PM |                | 0      |
| 1973 | ctools                | Feature | New         | Normal   | Use OpenMP to parallelize computation in ctedispcube  |                    | 03/18/2017 01:00 PM |                | 0      |
| 1972 | ctools                | Feature | New         | Normal   | Use OpenMP to parallelize computation in ctpscube   |                    | 03/18/2017 01:00 PM |                | 0      |
| 1971 | ctools                | Feature | New         | Normal   | Use OpenMP to parallelize computation in ctxpcube   |                    | 03/18/2017 01:00 PM |                | 0      |
| 1741 | ctools                | Feature | In Progress | Normal   | Refactor the cscripts to reduce the Sonar issues  | Knödlseeder Jürgen | 03/03/2017 10:34 AM |                | 50     |
| 1499 | ctools                | Feature | New         | Normal   | csspec to produce count spectrum  |                    | 03/03/2017 10:33 AM |                | 0      |
| 1768 | GammaLib              | Feature | In Progress | Normal   | Investigate whether we can interface GammaLib with NumPy  | Knödlseeder Jürgen | 03/03/2017 10:17 AM |                | 50     |
| 1883 | ctools                | Feature | New         | Normal   | csobsinfo should log UTC times in addition to MJD   |                    | 11/24/2016 11:38 AM |                | 0      |
| 1880 | GammaLib              | Feature | New         | Normal   | Add solidangle() method to GModelSpatial  |                    | 11/22/2016 05:01 PM |                | 0      |
| 591  | GammaLib              | Feature | In Progress | Urgent   | Investigate how GammaLib can be made VO compliant.  |                    | 10/06/2016 05:41 PM |                | 76     |
| 1231 | GammaLib              | Action  | In Progress | Normal   | Design and implement GVOTable class   |                    | 07/31/2017 11:09 PM |                | 80     |
| 1170 | GammaLib              | Action  | New         | High     | Add object to coordinate transformation using VO services to GSKyDir  | Louge Thierry      | 12/12/2014 12:35 PM |                | 0      |
| 1839 | ctools                | Feature | New         | Normal   | Compiling ctools doesn't get faster using 'make -j4'  |                    | 08/08/2016 02:55 PM |                | 0      |
| 1833 | ctools                | Feature | New         | Normal   | Tool to compute upper limit map   |                    | 08/01/2016 02:58 PM |                | 0      |
| 569  | GammaLib              | Action  | New         | Normal   | Add acceptance reader   | Knödlseeder Jürgen | 10/03/2013 02:34 PM |                | 0      |
| 306  | GammaLib              | Feature | In Progress | Normal   | Clean up Fermi/LAT response classes   |                    | 06/21/2016 05:24 PM |                | 65     |
| 289  | GammaLib              | Action  | In Progress | Normal   | Extend and cleanup GLATResponseTable class  | Knödlseeder Jürgen | 07/12/2012 10:15 AM |                | 30     |
| 1796 | ctools                | Feature | New         | Normal   | Add tool to create spectrum points as function of true energy   |                    | 06/20/2016 10:19 AM |                | 0      |
| 1769 | ctools                | Feature | New         | Normal   | Allow to specify an energy range for ctlike   |                    | 06/18/2016 10:07 AM |                | 0      |
| 1753 | GammaLib              | Feature | New         | Normal   | Add GCTAEventBin arithmetic operators   |                    | 04/04/2016 02:21 PM |                | 0      |

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| 1749 | ctools   | Feature | New         | Normal   | Parallelise stacked analysis tools                           |                      | 03/29/2016 09:35 AM |                | 0      |
| 1747 | GammaLib | Feature | New         | Normal   | GModel for Gamma Ray Spectrum from Dark Matter               |                      | 03/17/2016 12:02 PM |                | 0      |
| 1726 | ctools   | Feature | New         | Normal   | Test ctools on MAGIC data                                    | Satalecka Konstancja | 03/03/2016 10:38 PM |                | 0      |
| 1728 | ctools   | Action  | New         | Normal   | Write exporter for MAGIC response functions                  | Satalecka Konstancja | 03/03/2016 10:38 PM |                | 0      |
| 1727 | ctools   | Action  | New         | Normal   | Write exporter for MAGIC data                                | Satalecka Konstancja | 03/03/2016 10:37 PM |                | 0      |
| 1712 | ctools   | Feature | New         | Normal   | Create tool to compute systematic errors by bracketing IRFs  |                      | 02/24/2016 09:49 PM |                | 0      |
| 1665 | GammaLib | Feature | New         | Normal   | Add GUnit class that handles FITS unit conventions           |                      | 02/12/2016 09:14 PM |                | 0      |
| 1663 | ctools   | Feature | In Progress | Normal   | ctool to simulate events for a given obsdef and model?       |                      | 02/12/2016 03:50 PM |                | 30     |
| 1614 | ctools   | Feature | New         | Normal   | Extend ctools unit tests                                     |                      | 02/08/2016 10:07 PM |                | 0      |
| 1530 | ctools   | Feature | Feedback    | Normal   | Python Function to Convert GObservations to GCTABackground3D |                      | 01/25/2016 05:01 PM |                | 90     |
| 1647 | ctools   | Feature | New         | Normal   | Write documentation section: Simulations of IACT data        |                      | 01/15/2016 03:00 PM |                | 0      |
| 1645 | ctools   | Feature | New         | Normal   | Create ctlinesarch tool                                      |                      | 01/14/2016 03:10 PM |                | 0      |
| 1644 | ctools   | Feature | New         | Normal   | Create ctflxspec tool  |                      | 01/14/2016 03:10 PM |                | 0      |
| 1643 | ctools   | Feature | New         | Normal   | Create ctcntspec tool  |                      | 01/14/2016 03:08 PM |                | 0      |
| 1642 | ctools   | Feature | New         | Normal   | Create ctexpspec tool  |                      | 01/14/2016 03:07 PM |                | 0      |
| 1641 | ctools   | Feature | New         | Normal   | Create ctbkgspec tool  |                      | 01/14/2016 03:06 PM |                | 0      |
| 1640 | ctools   | Feature | New         | Normal   | Create ctevtspec tool  |                      | 01/14/2016 03:05 PM |                | 0      |
| 1638 | ctools   | Feature | New         | Normal   | Create ctmapcombine tool                                     |                      | 01/14/2016 02:56 PM |                | 0      |
| 1637 | ctools   | Feature | New         | Normal   | Create ctmapsmooth tool                                      |                      | 01/14/2016 02:55 PM |                | 0      |
| 1636 | ctools   | Feature | New         | Normal   | Create ctskydeconv tool                                      |                      | 01/14/2016 02:53 PM |                | 0      |
| 1635 | ctools   | Feature | New         | Normal   | Create ctfilter tool   |                      | 01/14/2016 02:50 PM |                | 0      |
| 1633 | ctools   | Feature | New         | Normal   | Create ctirfsim tool   |                      | 01/14/2016 02:47 PM |                | 0      |
| 1632 | ctools   | Feature | New         | Normal   | Create ctptnsim tool   |                      | 01/14/2016 02:46 PM |                | 0      |
| 1623 | ctools   | Feature | New         | Normal   | Create ctpulsesearch tool                                    |                      | 01/14/2016 09:07 AM |                | 0      |
| 1625 | ctools   | Feature | New         | Normal   | Create ctphasogram tool                                      |                      | 01/14/2016 09:07 AM |                | 0      |
| 1627 | ctools   | Feature | New         | Normal   | Create ctpuldb tool  |                      | 01/14/2016 09:07 AM |                | 0      |
| 1622 | ctools   | Feature | New         | Normal   | Create ctpersearch tool                                      |                      | 01/14/2016 09:06 AM |                | 0      |
| 1624 | ctools   | Feature | New         | Normal   | Create ctorbgram tool  |                      | 01/14/2016 09:05 AM |                | 0      |
| 1626 | ctools   | Feature | New         | Normal   | Create ctorbdb tool  |                      | 01/14/2016 09:05 AM |                | 0      |
| 1621 | ctools   | Feature | New         | Normal   | Create ctsensspec tool                                       |                      | 01/14/2016 08:50 AM |                | 0      |

| #    | Project  | Tracker | Status      | Priority | Subject  | Assigned To        | Updated             | Target version | % Done |
|------|----------|---------|-------------|----------|--|--------------------|---------------------|----------------|--------|
| 1620 | ctools   | Feature | New         | Normal   | Create ctsensmap tool  |                    | 01/14/2016 08:49 AM |                | 0      |
| 1619 | ctools   | Feature | New         | Normal   | Create ctsrccat tool   |                    | 01/14/2016 08:45 AM |                | 0      |
| 1618 | ctools   | Feature | New         | Normal   | Create ctsrcid tool  |                    | 01/14/2016 08:44 AM |                | 0      |
| 874  | GammaLib | Feature | New         | High     | Test gammalib morphology fitting againsts other tools                                    | Deil Christoph     | 10/16/2015 11:23 PM |                | 0      |
| 1516 | GammaLib | Feature | New         | Normal   | GEbounds::contains should also handle non-contiguous energy boundaries                   |                    | 07/23/2015 11:12 PM |                | 0      |
| 1152 | ctools   | Feature | New         | High     | Add ctool for quick look and checks  |                    | 07/02/2015 11:33 AM |                | 0      |
| 1493 | ctools   | Feature | New         | Normal   | Integral flux and energy flux errors from ctlike   |                    | 06/30/2015 05:50 PM |                | 0      |
| 1473 | GammaLib | Feature | New         | Normal   | Improve tracing of exceptions in integration computations                                |                    | 06/08/2015 02:56 PM |                | 0      |
| 1454 | ctools   | Feature | New         | Normal   | Add check for binned and unbinned analysis to ctool::get_observations()                  |                    | 03/30/2015 01:43 PM |                | 0      |
| 1117 | ctools   | Feature | New         | Normal   | Pulsar phase integration   | Giavitto Gianluca  | 07/19/2014 02:16 AM |                | 0      |
| 1115 | ctools   | Feature | New         | Normal   | Create pointing simulation tool  |                    | 07/19/2014 02:15 AM |                | 0      |
| 1038 | ctools   | Feature | New         | Normal   | Implement ctool to create cube background model from off run list                        | Deil Christoph     | 07/19/2014 02:15 AM |                | 0      |
| 541  | ctools   | Feature | New         | Normal   | Tools for reflected - background method spectra  | Deil Christoph     | 07/19/2014 02:15 AM |                | 0      |
| 1111 | GammaLib | Feature | In Progress | Normal   | create GSkyRegionRing class  |                    | 07/19/2014 02:10 AM |                | 90     |
| 1070 | GammaLib | Feature | New         | Normal   | Add @make install-no-doxygen@ target (or document it in @make help@ output if it exists) | Knödlseeder Jürgen | 07/19/2014 02:10 AM |                | 0      |
| 1041 | GammaLib | Feature | New         | High     | Document observation definition XML file format  |                    | 07/19/2014 02:10 AM |                | 0      |
| 1001 | GammaLib | Feature | New         | Normal   | Implement general scheme to handle event classes   |                    | 07/19/2014 02:09 AM |                | 0      |
| 1284 | GammaLib | Feature | New         | Normal   | Introduce generic GBounds class to handle lists of boundaries                            |                    | 07/16/2014 06:05 PM |                | 0      |
| 1262 | GammaLib | Feature | New         | Normal   | Please add example how to fit a spectrum to flux points                                  |                    | 07/10/2014 11:20 AM |                | 0      |
| 1234 | GammaLib | Feature | New         | Normal   | Add a way to create IRF classes directly without needing FITS files                      |                    | 06/26/2014 09:30 AM |                | 0      |
| 1079 | GammaLib | Feature | In Progress | Normal   | Improve GammaLib unit testing experience   |                    | 04/24/2014 04:12 PM |                | 10     |
| 1123 | GammaLib | Feature | New         | Normal   | Implement energy dependent SkyRegion   |                    | 01/29/2014 05:40 PM |                | 0      |
| 1085 | GammaLib | Feature | New         | High     | GCTAAeff-classes should have members specifying their valid range                        |                    | 01/21/2014 09:35 AM |                | 0      |
| 544  | ctools   | Feature | New         | Normal   | Create ctpoisson tool  | Deil Christoph     | 01/19/2014 02:05 AM |                | 10     |
| 1078 | GammaLib | Feature | New         | Low      | Add unit tests for GModel::mc() methods  |                    | 01/13/2014 10:01 PM |                | 0      |
| 1069 | ctools   | Feature | New         | Normal   | Document which ctool works with which instrument   |                    | 01/09/2014 02:44 PM |                | 0      |
| 1066 | GammaLib | Feature | New         | Normal   | Check of GCTAModelBackground GModelSpatialDiffuseCube center and coverage of roi         |                    | 01/08/2014 07:00 PM |                | 0      |

| #    | Project  | Tracker | Status      | Priority | Subject  | Assigned To        | Updated             | Target version | % Done |
|------|----------|---------|-------------|----------|--|--------------------|---------------------|----------------|--------|
| 725  | GammaLib | Feature | New         | Normal   | Allow for instrument dependent model scaling   | Knödlseeder Jürgen | 12/10/2013 12:18 AM |                | 50     |
| 727  | GammaLib | Action  | New         | Normal   | Add global instrument scaling.   | Knödlseeder Jürgen | 02/05/2013 05:19 PM |                | 0      |
| 620  | GammaLib | Feature | New         | Normal   | Stack trace from Python unit tests   |                    | 12/10/2013 12:18 AM |                | 0      |
| 37   | GammaLib | Feature | In Progress | Urgent   | Support removing and updating of an existing HDU   | Knödlseeder Jürgen | 12/06/2013 12:58 AM |                | 50     |
| 989  | GammaLib | Feature | In Progress | Normal   | Add support for variable length columns to FITS module.                                  | Knödlseeder Jürgen | 11/22/2013 05:14 PM |                | 90     |
| 610  | GammaLib | Feature | New         | Normal   | Rethink FITS image classes   |                    | 11/18/2013 08:50 PM |                | 0      |
| 897  | ctools   | Feature | New         | Normal   | store covariance matrix in log file  |                    | 05/30/2013 11:37 AM |                | 0      |
| 651  | GammaLib | Feature | In Progress | Normal   | Crab reference spectra   | Deil Christoph     | 12/17/2012 08:48 PM |                | 0      |
| 612  | GammaLib | Feature | New         | Normal   | Add Monte Carlo simulation support to COMPTEL interface.                                 |                    | 12/04/2012 10:47 PM |                | 0      |
| 585  | ctools   | Feature | New         | Normal   | Add api-sanity-checker on Jenkins for ctools   |                    | 11/07/2012 02:18 PM |                | 0      |
| 580  | GammaLib | Feature | New         | Normal   | Generate Linux packages for gammalib and ctools via the Open Build Service               | Deil Christoph     | 11/01/2012 09:59 PM |                | 0      |
| 581  | GammaLib | Feature | New         | Normal   | Distribute gammalib for Macs via the Homebrew package manager                            | Deil Christoph     | 10/31/2012 05:27 PM |                | 0      |
| 566  | GammaLib | Feature | New         | Normal   | Distribute gammalib for Macs via the Macports package manager?                           | Deil Christoph     | 10/15/2012 01:46 PM |                | 0      |
| 117  | ctools   | Feature | New         | Normal   | Define ctools profiling procedure  |                    | 10/13/2012 07:20 PM |                | 0      |
| 487  | GammaLib | Feature | New         | Normal   | Add developer info wiki page on how to develop GammaLib with an IDE like Eclipse / XCode | Deil Christoph     | 09/19/2012 11:06 PM |                | 10     |
| 305  | GammaLib | Feature | New         | Normal   | Complete implementation of Fermi/LAT response  |                    | 07/12/2012 08:58 AM |                | 0      |
| 142  | GammaLib | Feature | New         | Normal   | Configure script should test for LateX   |                    | 04/02/2012 05:18 PM |                | 0      |
| 116  | ctools   | Feature | New         | Normal   | Define ctools validation procedure   |                    | 03/08/2012 05:45 PM |                | 0      |
| 38   | GammaLib | Feature | New         | Low      | Clean up GFits classes   |                    | 02/20/2012 06:08 PM |                | 0      |
| 39   | GammaLib | Feature | New         | Low      | Assure consistency of FITS column operations   |                    | 02/20/2012 06:07 PM |                | 0      |
| 36   | GammaLib | Feature | New         | Low      | Complete implementation of FITS ASCII table handling                                     |                    | 02/20/2012 06:06 PM |                | 0      |
| 45   | GammaLib | Feature | New         | Low      | Correctly reflect any change in the NULL value of FITS table columns                     |                    | 02/20/2012 06:06 PM |                | 0      |
| 43   | GammaLib | Feature | New         | Normal   | Document and format matrix classes   |                    | 02/20/2012 05:58 PM |                | 0      |
| 3536 | ctools   | Action  | In Progress | Normal   | Check performance of csresmap and csrespec   | Tibaldo Luigi      | 06/04/2022 08:44 PM |                | 0      |
| 3534 | ctools   | Action  | New         | Normal   | Try to speed-up csphagen   | Knödlseeder Jürgen | 04/21/2022 02:29 PM |                | 0      |
| 3633 | ctools   | Action  | New         | Normal   | Make sure that all FITS files have units   |                    | 04/21/2022 02:28 PM |                | 0      |



| #    | Project  | Tracker | Status      | Priority | Subject  | Assigned To        | Updated             | Target version | % Done |
|------|----------|---------|-------------|----------|--|--------------------|---------------------|----------------|--------|
| 3319 | ctools   | Action  | In Progress | Normal   | Shorten ctools unit testing  | Knödlseeder Jürgen | 04/21/2022 02:27 PM | 2.1.0          | 20     |
| 3610 | ctools   | Action  | New         | Normal   | Add spatial butterfly  |                    | 03/15/2022 12:51 PM |                | 0      |
| 3537 | ctools   | Action  | New         | Normal   | Speed-up tutorials   |                    | 03/15/2022 12:51 PM |                | 0      |
| 3455 | ctools   | Action  | In Progress | Normal   | Vectorise ctmodel  | Knödlseeder Jürgen | 03/15/2022 12:50 PM |                | 10     |
| 3503 | GammaLib | Action  | New         | Normal   | Implement vectorised response computation for SPI  |                    | 03/14/2022 02:02 PM |                | 0      |
| 3502 | GammaLib | Action  | New         | Normal   | Implement vectorised response computation for Fermi-LAT  |                    | 03/14/2022 12:29 PM |                | 0      |
| 3463 | GammaLib | Action  | New         | Normal   | Add "RING" method to GSkyMap smooth and correlate  |                    | 03/14/2022 12:29 PM |                | 0      |
| 3450 | GammaLib | Action  | New         | Normal   | Implement OpenMP support in CTA response cube filling  |                    | 03/14/2022 12:28 PM |                | 0      |
| 3405 | GammaLib | Action  | In Progress | Normal   | Implement vectorised response computation for energy dispersion                                      | Knödlseeder Jürgen | 03/14/2022 12:28 PM |                | 20     |
| 3396 | GammaLib | Action  | New         | Normal   | Implement analytical gradients for elliptical Gaussian model   |                    | 03/14/2022 12:28 PM |                | 0      |
| 3395 | GammaLib | Action  | New         | Normal   | Implement analytical gradients for elliptical disk model   |                    | 03/14/2022 12:28 PM |                | 0      |
| 1843 | GammaLib | Action  | In Progress | Normal   | Avoid code duplication in const and non-const functions and operators                                |                    | 03/14/2022 12:27 PM |                | 10     |
| 3394 | GammaLib | Action  | New         | Normal   | Implement analytical gradients for point source model  |                    | 03/14/2022 12:27 PM |                | 0      |
| 3393 | GammaLib | Action  | New         | Normal   | Implement analytical gradients for radial shell model  |                    | 03/14/2022 12:27 PM |                | 0      |
| 3392 | GammaLib | Action  | New         | Normal   | Implement analytical gradients for radial ring model   |                    | 03/14/2022 12:26 PM |                | 0      |
| 3391 | GammaLib | Action  | In Progress | Normal   | Implement analytical gradients for radial disk model   | Knödlseeder Jürgen | 03/14/2022 12:26 PM |                | 20     |
| 2939 | GammaLib | Action  | New         | Normal   | Add support for extended spatial models in Fermi/LAT analysis  |                    | 03/14/2022 12:25 PM |                | 0      |
| 933  | ctools   | Action  | In Progress | Normal   | Implement ctspeccts (or ctspecgen)   |                    | 11/24/2021 10:44 AM |                | 0      |
| 3693 | GammaLib | Action  | New         | Normal   | Add statistics methods to GNdarray   |                    | 05/20/2021 10:52 AM |                | 0      |
| 3414 | GammaLib | Action  | New         | Normal   | Study impact of spectral model on spatial model if computed under consideration of energy dispersion |                    | 10/21/2020 02:41 PM |                | 0      |
| 2891 | GammaLib | Action  | New         | Normal   | Make sure that X-ray data in OGIP format (e.g. XMM-Newton, Chandra) can be digested                  |                    | 07/02/2020 04:30 PM |                | 0      |
| 3242 | GammaLib | Action  | New         | Normal   | Add method to return Fisher information matrix   |                    | 06/24/2020 09:47 PM |                | 0      |
| 3205 | GammaLib | Action  | New         | Normal   | Implement efficient GSPIResponse::irf_diffuse method   |                    | 04/14/2020 09:48 AM |                | 0      |
| 3204 | GammaLib | Action  | New         | Normal   | Implement generic methods for PSF information  |                    | 04/13/2020 10:28 AM |                | 0      |
| 3068 | GammaLib | Action  | New         | Normal   | Improve precision of background model computation in GCTACubeBackground::fill method                 |                    | 11/15/2019 04:04 PM |                | 0      |
| 2732 | GammaLib | Action  | New         | Normal   | Make sure that energy boundaries for energy dispersion are computed correctly                        |                    | 01/21/2019 03:27 PM |                | 0      |
| 2152 | ctools   | Action  | In Progress | Normal   | Make sure that all ctools/cscripts work for non-CTA observations                                     | Knödlseeder Jürgen | 01/21/2019 03:26 PM |                | 10     |

| #    | Project  | Tracker | Status      | Priority | Subject   | Assigned To      | Updated             | Target version | % Done |
|------|----------|---------|-------------|----------|---|------------------|---------------------|----------------|--------|
| 2473 | GammaLib | Action  | New         | Normal   | Reduce calls to std::acos in model evaluations                              | Cardenzana Josh  | 04/27/2018 04:54 PM |                | 0      |
| 2388 | ctools   | Action  | New         | Normal   | Check input model in ctbkcube   |                  | 03/06/2018 04:57 PM |                | 0      |
| 1718 | ctools   | Action  | New         | Normal   | Source's photons detected by ctlike   |                  | 01/25/2018 11:55 PM |                | 0      |
| 1866 | ctools   | Action  | New         | Normal   | Make sure that ctools parameter files and documentation is consistent       |                  | 01/23/2018 05:01 PM |                | 0      |
| 2175 | ctools   | Action  | New         | Normal   | Detect in ./configure whether cfitsio cannot be found                       |                  | 08/04/2017 10:01 AM |                | 0      |
| 2150 | GammaLib | Action  | New         | Normal   | Assure that GSKyMap::overlaps() always returns exact response               |                  | 07/06/2017 02:25 PM |                | 0      |
| 1766 | GammaLib | Action  | New         | Normal   | Use response table IRF by default for all unit tests                        |                  | 06/06/2017 10:25 PM |                | 0      |
| 1941 | ctools   | Action  | New         | Normal   | A ctobsselect run should preserve any environment variables in the XML file |                  | 03/03/2017 05:06 PM |                | 0      |
| 1917 | GammaLib | Action  | New         | Normal   | Investigate fitting of phase parameters of GModelTemporalPhaseCurve         |                  | 01/28/2017 11:01 PM |                | 0      |
| 1842 | ctools   | Action  | New         | Normal   | All cscripts should have a clear() method                                   |                  | 08/12/2016 10:30 AM |                | 0      |
| 1802 | GammaLib | Action  | New         | Normal   | Add methods for writing standard OGIP FITS keywords                         |                  | 06/23/2016 12:21 AM |                | 0      |
| 1416 | GammaLib | Action  | In Progress | Normal   | Add missing WCS projections   |                  | 06/21/2016 10:09 PM |                | 0      |
| 1763 | GammaLib | Action  | New         | Normal   | Add swig version requirement to user documentation                          |                  | 04/14/2016 09:44 PM |                | 0      |
| 1122 | GammaLib | Action  | New         | Normal   | Calculate IRFs for GSKyRegions  | Kosack Karl      | 03/11/2016 06:09 PM |                | 100    |
| 1124 | GammaLib | Action  | New         | Normal   | implement region rotation   |                  | 03/11/2016 06:08 PM |                | 0      |
| 1697 | GammaLib | Action  | New         | Normal   | Revise documentation of all model classes                                   |                  | 02/18/2016 04:33 PM |                | 0      |
| 1631 | ctools   | Action  | New         | Normal   | Define format for pulsar ephemerides  |                  | 01/14/2016 09:06 AM |                | 0      |
| 1630 | ctools   | Action  | New         | Normal   | Define format for orbital solution  |                  | 01/14/2016 09:05 AM |                | 0      |
| 1629 | ctools   | Action  | New         | Normal   | Define format for pulsar database   |                  | 01/14/2016 09:03 AM |                | 0      |
| 1628 | ctools   | Action  | New         | Normal   | Define format for orbital database  |                  | 01/14/2016 09:02 AM |                | 0      |
| 1118 | GammaLib | Action  | In Progress | Normal   | Document CTA energy dispersion in the GammaLib user manual                  | Knödseder Jürgen | 10/27/2015 11:11 PM |                | 10     |
| 1448 | GammaLib | Action  | New         | Normal   | Investigate the stability of ellipse model fitting                          |                  | 03/18/2015 04:46 PM |                | 0      |
| 1428 | ctools   | Action  | New         | Normal   | Add note about multiple Python installs to documentation                    |                  | 02/20/2015 04:01 PM |                | 0      |
| 1334 | GammaLib | Action  | New         | Normal   | Add write() save() methods to GCTAAeffArf                                   |                  | 10/30/2014 12:12 PM |                | 0      |
| 1327 | GammaLib | Action  | New         | Low      | VERITAS Support   | Dickinson Hugh   | 09/30/2014 07:02 PM |                | 0      |
| 1307 | GammaLib | Action  | New         | Normal   | Implement GCTAResponseCube::npred()   | Lu Chia-Chun     | 07/31/2014 10:31 AM |                | 0      |
| 1295 | GammaLib | Action  | New         | Normal   | New branch in GCTAExposure::fill()  | Lu Chia-Chun     | 07/25/2014 05:20 PM |                | 0      |
| 1253 | GammaLib | Action  | New         | Low      | Merge doc/source/user_manual/manual/ pages into the normal user manual      |                  | 07/09/2014 09:44 AM |                | 0      |
| 1245 | GammaLib | Action  | New         | Normal   | Add fill method to GSKymap  |                  | 07/08/2014 09:25 AM |                | 0      |
| 1125 | GammaLib | Action  | New         | Normal   | Add unit test for 3D interpolation in GCTAResponseTable                     |                  | 06/16/2014 11:37 AM |                | 0      |

| #    | Project  | Tracker        | Status      | Priority | Subject  | Assigned To           | Updated             | Target version | % Done |
|------|----------|----------------|-------------|----------|--|-----------------------|---------------------|----------------|--------|
| 1002 | GammaLib | Action         | New         | Normal   | Use std::vector to hold column pointers in GFitsTable  |                       | 11/23/2013 01:47 AM |                | 0      |
| 992  | GammaLib | Action         | New         | Normal   | Check of set_mc_cone() should also be added to the diffuse map class to provide the proper normalization of the Monte Carlo. |                       | 11/19/2013 02:25 AM |                | 0      |
| 801  | GammaLib | Action         | New         | Normal   | Correctly implement scanf and printf methods for GURLString  |                       | 03/16/2013 01:46 AM |                | 0      |
| 583  | GammaLib | Action         | New         | Normal   | Reserve a good domain name for gammalib / ctools?  |                       | 11/01/2012 09:55 PM |                | 0      |
| 419  | GammaLib | Action         | New         | Normal   | Disable tests involving Fits file access if cfitsio is not compiled into GammaLib  |                       | 08/18/2012 04:52 AM |                | 0      |
| 3508 | GammaLib | Change request | New         | Normal   | Use consistent method names for number of rows and columns   |                       | 03/14/2022 02:04 PM |                | 0      |
| 3258 | GammaLib | Change request | New         | Normal   | Change GModelSpatial::region() method to GModelSpatial::regions() that returns a GRegions object                             |                       | 03/14/2022 02:04 PM |                | 0      |
| 2882 | GammaLib | Change request | New         | Normal   | Reorganise CTA background models   |                       | 03/14/2022 02:04 PM |                | 0      |
| 2730 | ctools   | Change request | New         | Low      | Adopt tools to store GSKyRegions instead of maps which would allow a greater flexibility                                     |                       | 07/15/2020 12:03 PM |                | 0      |
| 3057 | ctools   | Change request | New         | Low      | Enhance ctlike debug output by replacing parameter index with source name  |                       | 11/08/2019 03:21 PM |                | 0      |
| 2769 | ctools   | Change request | New         | Normal   | ctfindvar should support a general background model  |                       | 12/11/2018 02:26 PM |                | 0      |
| 2461 | GammaLib | Change request | New         | High     | Improve accuracy of response computation for stacked analysis  |                       | 11/07/2018 02:19 PM |                | 0      |
| 2720 | GammaLib | Change request | New         | Normal   | Add margin to energy boundaries GCTABackground3D   |                       | 11/06/2018 05:06 PM |                | 0      |
| 2451 | ctools   | Change request | New         | Normal   | Expand energy range for spectrum generation to the maximum for multiple observations   | Knödlseeder<br>Jürgen | 06/18/2018 12:43 PM |                | 0      |
| 2194 | ctools   | Change request | In Progress | Normal   | Exposure keyword   | Knödlseeder<br>Jürgen | 01/23/2018 05:00 PM |                | 10     |
| 2235 | GammaLib | Change request | New         | Normal   | Increment software version for each merge into the devel branch  |                       | 10/20/2017 09:45 AM |                | 0      |
| 2173 | GammaLib | Change request | New         | Normal   | Guarantee consistency of Good Time Intervals in the GGti class   |                       | 10/11/2017 09:01 PM |                | 0      |
| 2185 | ctools   | Change request | New         | Normal   | Improve ctulimit log file output   |                       | 08/27/2017 10:17 AM |                | 0      |
| 1874 | GammaLib | Change request | New         | High     | Add validity range to the CTA PSF classes  |                       | 07/31/2017 11:11 PM |                | 0      |
| 2144 | GammaLib | Change request | New         | Normal   | Prevent using an old swig version  |                       | 07/03/2017 09:28 AM |                | 0      |
| 1668 | GammaLib | Change request | New         | Normal   | Make sure that all save() methods have a clobber argument  |                       | 06/06/2017 04:21 PM |                | 0      |

| #    | Project  | Tracker        | Status      | Priority | Subject   | Assigned To           | Updated             | Target version | % Done |
|------|----------|----------------|-------------|----------|---|-----------------------|---------------------|----------------|--------|
| 1782 | GammaLib | Change request | New         | Normal   | Get rid of m_value_dtype member in GFitsHeaderCode                                      |                       | 06/06/2017 04:20 PM |                | 0      |
| 2096 | ctools   | Change request | New         | Normal   | ctlake is very slow when a mapcube is used in the xml model                             |                       | 05/24/2017 04:19 PM |                | 0      |
| 1942 | ctools   | Change request | New         | Normal   | Clarify model description   |                       | 03/07/2017 10:41 AM |                | 0      |
| 1837 | ctools   | Change request | In Progress | Normal   | Copying of a ctool or cscript should initialise its log file                            | Knödlseeder<br>Jürgen | 03/03/2017 10:50 AM |                | 50     |
| 1923 | GammaLib | Change request | New         | Normal   | Allow setting of time reference in GCTACubeExposure                                     |                       | 02/03/2017 02:05 PM |                | 0      |
| 1921 | ctools   | Change request | New         | Normal   | ctselect on observation definition file should remove empty observations from container |                       | 02/03/2017 12:37 PM |                | 0      |
| 1817 | GammaLib | Change request | New         | Normal   | GLog should regularly update log file   |                       | 08/08/2016 11:46 AM |                | 0      |
| 1812 | ctools   | Change request | New         | Normal   | csworkflow debug=yes should print tool output right away                                |                       | 07/18/2016 11:12 PM |                | 0      |
| 1794 | GammaLib | Change request | New         | Normal   | Handle energy dependent deadtime for CTA  |                       | 06/17/2016 12:01 PM |                | 0      |
| 1757 | ctools   | Change request | In Progress | Normal   | cssens should respect previously applied energy cuts (and thresholds)                   |                       | 06/14/2016 04:19 PM |                | 0      |
| 1780 | GammaLib | Change request | New         | Normal   | Simplify the FITS image interface   |                       | 05/30/2016 10:05 PM |                | 0      |
| 1774 | GammaLib | Change request | New         | Normal   | Refactor GCTAOnOffObservation class   |                       | 04/28/2016 11:33 AM |                | 0      |
| 1571 | GammaLib | Change request | New         | High     | Use given detector coordinates in IACTs event lists instead of recomputing them         | Knödlseeder<br>Jürgen | 04/05/2016 03:53 PM |                | 0      |
| 1713 | ctools   | Change request | New         | Normal   | ctselect should write full paths into the outobs XML file                               |                       | 02/24/2016 09:56 PM |                | 0      |
| 1698 | GammaLib | Change request | New         | Normal   | Remove default values from Doxygen documentation  |                       | 02/18/2016 10:18 PM |                | 0      |
| 1659 | GammaLib | Change request | New         | Normal   | Implement full support for ds9 format in GSKyRegionCircle                               |                       | 02/09/2016 11:41 AM |                | 0      |
| 1660 | GammaLib | Change request | New         | Normal   | Implement full support for ds9 format in GSKyRegions                                    |                       | 02/09/2016 11:41 AM |                | 0      |
| 814  | ctools   | Change request | New         | Low      | Sensitivity of fit to initial values  | Martin<br>Pierrick    | 10/30/2015 12:19 AM |                | 0      |
| 1515 | GammaLib | Change request | New         | Normal   | Invalid FITS unit string in background cube example file                                |                       | 07/22/2015 09:01 PM |                | 0      |

| #    | Project  | Tracker        | Status      | Priority | Subject   | Assigned To      | Updated             | Target version | % Done |
|------|----------|----------------|-------------|----------|---|------------------|---------------------|----------------|--------|
| 1433 | GammaLib | Change request | New         | Normal   | CTA EVENT_ID should be 64Bit long   |                  | 03/03/2015 04:49 PM |                | 0      |
| 1431 | ctools   | Change request | New         | Normal   | Documentation versions  |                  | 02/24/2015 10:03 AM |                | 0      |
| 1355 | GammaLib | Change request | New         | Low      | Try doing the elliptical CTA response computation in a Psf-based system                             |                  | 10/31/2014 01:45 PM |                | 0      |
| 1345 | GammaLib | Change request | New         | Normal   | Define elliptical disk model on the sphere  |                  | 10/30/2014 11:20 AM |                | 0      |
| 1289 | GammaLib | Change request | In Progress | High     | Reduce extensive usage of dynamic_cast.   | Knödseder Jürgen | 07/23/2014 08:58 AM |                | 10     |
| 1197 | GammaLib | Change request | New         | High     | Gammlib should check consistency of model and observation xmls                                      | Knödseder Jürgen | 07/21/2014 10:23 PM |                | 0      |
| 1052 | GammaLib | Change request | New         | Low      | GammaLib local sphinx docs sometimes load slowly because they fetch Google fonts and Mathjax online | Deil Christoph   | 07/19/2014 02:11 AM |                | 0      |
| 1176 | GammaLib | Change request | New         | Normal   | Introduce GCTAPointings container class to handle pointing tables                                   |                  | 03/13/2014 01:10 PM |                | 0      |
| 1076 | GammaLib | Change request | In Progress | Normal   | Remove @GApplicationPars.write@ call from GApplication() destructor?                                | Deil Christoph   | 03/13/2014 12:37 PM |                | 0      |
| 1136 | ctools   | Change request | New         | Normal   | Allow for energy integration in ctmodel   |                  | 02/07/2014 08:21 AM |                | 0      |
| 623  | GammaLib | Change request | In Progress | Low      | Change deprecated INCLUDES to AM_CPPFLAGS in Makefile.am files                                      | Knödseder Jürgen | 01/09/2014 01:10 PM |                | 10     |
| 749  | GammaLib | Change request | New         | Normal   | Move instrument, ontime, livetime and deadc attributes to GObservation base class                   |                  | 01/08/2014 06:04 PM |                | 0      |
| 559  | GammaLib | Feature        | In Progress | Normal   | Create Eclipse C++ code formatting style for gammlib  | Deil Christoph   | 07/19/2014 02:09 AM |                | 0      |
| 1055 | GammaLib | Change request | New         | Low      | Review coding rule: "Output arguments should be passed as pointers"                                 | Knödseder Jürgen | 01/06/2014 12:01 AM |                | 0      |
| 1013 | ctools   | Change request | New         | Normal   | Make `ctbin` less strict for the input event lists it accepts?                                      |                  | 12/03/2013 09:38 PM |                | 0      |
| 972  | GammaLib | Change request | New         | Low      | Create a general registry class to reduce code duplication  |                  | 11/12/2013 12:01 PM |                | 0      |
| 970  | GammaLib | Change request | New         | Normal   | GCTAObservation::read allocates empty response if no response information is specified              |                  | 11/02/2013 11:03 PM |                | 0      |
| 632  | ctools   | Change request | New         | Normal   | ctselect: Two FITS files are created when using a single observation in XML input file              |                  | 12/14/2012 02:26 PM |                | 0      |
| 3539 | ctools   | Support        | In Progress | Urgent   | cutlimit to averaged velocity cross section   | Tibaldo Luigi    | 02/15/2021 08:46 AM |                | 90     |
| 3263 | ctools   | Support        | New         | Normal   | Mapping of seed variables   |                  | 07/08/2020 10:30 AM |                | 0      |
| 3178 | ctools   | Support        | In Progress | High     | Unusual clustering of results around 2 sigma significance   |                  | 07/08/2020 10:14 AM |                | 10     |

| #    | Project                   | Tracker            | Status      | Priority | Subject   | Assigned To           | Updated             | Target version | % Done |
|------|---------------------------|--------------------|-------------|----------|---|-----------------------|---------------------|----------------|--------|
| 3160 | ctools                    | Support            | In Progress | Normal   | Residual cosmic-ray background flux with ctmodel and ctexpcube                |                       | 02/27/2020 01:12 PM |                | 50     |
| 3131 | ctools                    | Support            | New         | Normal   | Possible cause of error   | Knödlseeder<br>Jürgen | 02/20/2020 03:40 PM |                | 50     |
| 2808 | GammaLib                  | Support            | In Progress | Normal   | Problem in Swig interface of GModel scale method?                             | Knödlseeder<br>Jürgen | 03/06/2019 12:14 PM |                | 10     |
| 2687 | ctools                    | Support            | New         | Normal   | make check does not seem to check the software                                |                       | 09/25/2018 11:59 AM |                | 0      |
| 1950 | ctools                    | Support            | In Progress | High     | 'invalid background response tables' with ctobssim                            | Knödlseeder<br>Jürgen | 01/24/2018 10:43 AM |                | 10     |
| 1939 | GammaLib                  | Support            | New         | Normal   | custom model skymap   |                       | 06/07/2017 12:47 AM |                | 0      |
| 2117 | GammaLib                  | Support            | New         | Normal   | point source spectrum of ctmodel doesn't match ctbin                          |                       | 06/07/2017 12:43 AM |                | 0      |
| 1968 | ctools                    | Support            | In Progress | Normal   | ctbin and ctmodel don't match up  | Knödlseeder<br>Jürgen | 04/14/2017 06:43 PM |                | 10     |
| 1925 | ctools                    | Support            | New         | Normal   | ctools flux points and upper limits   |                       | 04/05/2017 10:23 AM |                | 0      |
| 1926 | GammaLib                  | Support            | New         | Normal   | gammalib and ctools installation  |                       | 02/10/2017 12:15 PM |                | 0      |
| 1885 | ctools                    | Support            | Feedback    | Normal   | GModelSpatialRadialProfile class parents changed in branch 1520-dm-profiles ? | Knödlseeder<br>Jürgen | 12/01/2016 10:20 PM |                | 100    |
| 1877 | ctools                    | Support            | In Progress | Normal   | Fit results differ from MC input for Prod3 IRFs                               | Knödlseeder<br>Jürgen | 11/21/2016 11:52 AM |                | 0      |
| 1372 | GammaLib                  | Support            | New         | Normal   | The units of FileFunction   |                       | 12/04/2014 11:25 AM |                | 0      |
| 2058 | LabInvent<br>(InventIrap) | Story              | New         | Normal   | story1  |                       | 05/02/2017 03:05 PM |                | 0      |
| 2060 | LabInvent<br>(InventIrap) | Technical<br>Story | New         | Normal   | tech story1   |                       | 05/02/2017 03:07 PM |                | 0      |