BRITE Constellation Executive Science Team Bylaws

approved by BEST on 25 November 2019

Preamble

BRITE (BRIght Target Explorer) Constellation is a space astronomy mission to collect high-quality, time-dependent, dual-filter, optical photometry of bright stars with a set of nanosatellites, operated simultaneously by an international team of scientists and engineers. The scientific strength of BRITE Constellation is the ability to monitor at high photometric precision many of the apparently brightest stars in the night sky with sampling comparable to a BRITE nanosatellite orbital period (~100 minutes) for months or even years. The apparently brightest stars are also often the intrinsically most luminous and they often vary at long timescales which can be challenging to monitor with conventional observatories. The high levels of mass loss and energy loss from luminous stars make them prime drivers of the ecology of the Universe.

The technical and scientific backgrounds of BRITE Constellation and its history are described by Weiss et al. (2014, PASP 126, 573). More details on BRITE Constellation can also be found at *http://www.brite-constellation.at*. The project is open to the possibility of additional nanosatellites supported by new partners, since this would significantly expand BRITE's scientific potential.

Administrative structure

The administrative structure that oversees and implements science operations of BRITE Constellation (first established in June 2008 at a BRITE Workshop in Vienna, Austria) currently consists of:

- ✓ **BRITE Constellation Executive Science Team (BEST)**
  which makes decisions on how the BRITE Constellation mission is run

- ✓ **BRITE Constellation International Advisory Science Team (BIAST)** whose members are nominated from the worldwide astronomical community by BEST, which also grants membership; and

- ✓ **Ground-Based Observing Team (GBOT)** which provides a platform for BRITE scientists and observers worldwide to support collaborations and maximize the scientific output of BRITE-Constellation.

This document (hereafter abbreviated "the BEST Bylaws") outlines a code of conduct and responsibilities for BEST.

1. BEST membership

1.1. BEST has two (2) voting members for each BRITE satellite in the Constellation. The team responsible for the funding of a given satellite names the voting members associated with that satellite.

1.2. Membership is normally for four (4) years. Membership can be renewed or/and new appointments can be made after that time.

1.2.1. Voting members that leave BEST prematurely must be replaced in less than two (2) months after their resignation.

1.2.2. To maintain continuity in oversight of the mission, no more than a third (1/3) of the voting members can be replaced at the same time.

1.3. To include experts on various technical and scientific issues, BEST can nominate at any time such experts as non-voting BEST members, independent of their nationality. A majority of votes within BEST is required for the acceptance as a non-voting member. Membership is valid until the end of the election period of the BEST chair, i.e. for a period of up to two years. At the end of this period, BEST can vote on an extension for another period.

1.4 A (voting) BEST member can delegate his power of vote to any other BEST member, including non-voting BEST members, through proxy.

1.5. Any modifications to these membership policies must be approved by BEST when/if other parties apply to provide and fund additional facilities for the mission.

2. BEST powers and responsibilities

2.1. BEST decides how BRITE Constellation is run, and in particular controls the BRITE Constellation Science Operations (BCSO) as described in the document attached here to the BEST Bylaws and which is an integral part thereof.

2.2. BEST decides by simple majority (see also Bylaw 3.6.).

2.2.1. If 2/3 of voting members are not present at a meeting (either face-to face and/or via teleconference) the item under consideration must be circulated via email to the voting BEST members with a given deadline – nominally one (1) week

– for returning the votes on that item. No reply by a voting member by the deadline will be counted as an abstention.

2.3. BEST supervises the proper functioning of participating nanosatellites and can request technical reports from the agencies involved in the mission.

2.4. BEST decides on any Targets of Opportunity for the mission.

2.5. BEST oversees BRITE data processing and reduction, quality control, and assigns data to one of four (4) Categories described in Bylaw 5.2. This includes the publication of an up-to-date Cookbook describing BRITE photometric data reduction.

2.6. Contact PIs associated with each target observed by BRITE are assigned by BEST at the time of distribution of those target data. Most teams associated with proposals for individual targets were established early in the BRITE mission, but BEST is open to – or may invite – requests from BIAST for new targets, or for expressions of interest to join or re-organize teams for particular targets.

2.7. BEST coordinates media relations and outreach activities for the overall BRITE Constellation mission. Responsibility for media relations of an individual nanosatellite remains with the appropriate funding and operating teams (if BRITE nanosatellites or scientists funded by other agencies are not directly involved).

2.8. BEST actively encourages the involvement of students and postdoctoral fellows of all participating nations, and promotes intellectual exchanges among them.

3. Chair and Vice-Chair of BEST

3.1. BEST internally elects one of its members to act as Chair and another as Vice-Chair for a period of two (2) years.

3.2. The Chair supervises preparation & distribution of BRITE observing programmes.

3.2.1. The Chair prepares Draft Observing Programmes based on input from BEST, BIAST and other sources, and submits these to BEST for their discussion and acceptance (see the BCSO document, attached).

3.2.2. The Chair submits a Final Observing Programme to the BRITE Operations Team no later than one (1) month before the scheduled start of that programme.

3.2.3. The Chair distributes a Projected Observing Programme to BIAST at least twelve (12) months ahead of the intended observations. This is to allow sufficient time to organize

ground-based complementary programmes, with the caveat that events beyond BEST's control can modify the observing plan on short notice.

3.3. The Chair leads interactions among BEST and the BIAST and GBOT Chairs, and convenes and organizes BEST meetings; see Bylaw 4.1 below.

3.4. The Chair is the default public 'face' of BEST and BRITE Constellation for public relations and outreach, unless another person is designated to do so by BEST.

3.5. The Vice-Chair assists the Chair in all the duties listed in Bylaws 3.2 through 3.5.

3.6. In the case of a tie vote within BEST (during a meeting or via electronic polling), the Chair (or Vice-Chair, if the Chair is absent) decides.

4. Meetings of BEST

4.1. The Chair convenes and organizes BEST meetings at least once a year, normally announced at least three months in advance. Shorter notice is possible, if accepted by 2/3 of voting BEST members.

4.1.1. BEST meetings can be scheduled at any time if the request is made to the BEST Chair by at least half of the voting and non-voting members of BEST.

4.2. BEST meetings can be face-to-face or via electronic means. If a face-to-face meeting is called, remote participation electronically will be allowed if necessary.

5. BRITE Constellation data and their distribution

5.1 To ensure optimum scientific returns, data collected by the BRITE nanosatellites for any given target are merged. Data from one satellite are not restricted to the team which funds and operates that satellite. BEST is responsible for explaining this agreement to their respective agencies.

5.2. Data will be sorted into four (4) different categories:

- L0 = raw data as they arrive from the satellites on the ground, archived as FITS files
- L1 = preliminary extracted data
- L2 = fully reduced data, approved for release to BIAST Principal Investigators
- L3 = fully reduced data, approved for public release

5.2.1. Data passes rapidly from Category L0 to L1, and from L1 to L2 in no more than a month, unless there are special circumstances acknowledged by BEST.

5.2.2. Data in Category L2 will be promoted to Category L3 (for public release) within the proprietary period decided by BEST, unless there are valid technical reasons for not doing so, as judged by BEST.

5.3. BEST will oversee data processing and reduction, quality control, and assign data to one of the four (4) Categories defined in Bylaw 5.2. This includes the publication of an up-to-date Cookbook describing BRITE photometric data reduction. See also Bylaw 2.5.

5.4. The BRITE Data Archive, where data in all four (4) Categories (Bylaw 5.2) are stored is provided by the Copernicus Astronomical Center (CAC). Other partner nations will maintain mirror archives for data backup. L3 data will be available to the public exclusively through the BRITE Data Archive.

6. Modifications of this document

Modifications of these Bylaws require approval by at least 2/3 of all voting BEST members.

7. Appendices A & B

The appendices attached to these Bylaws are part of this agreement.

This document was initiated by the current voting members of BEST on 17 August 2018, and approved by email vote on 28 August 2018:

Austria:	**Canada:**	**Poland:**
Otto F. Koudelka PI BRITE-Austria	Gregg Wade PI Canada, BEST Chair	Gerald Handler PI Poland
Werner W. Weiss PI UniBRITE	Anthony Moffat	Andrzej Pigulski
Rainer Kuschnig	Jason Rowe	Piotr Orleański
Konstanze Zwintz BEST Vice-Chair	Slavek Rucinski	Radosław Smolec

Appendix A:
BRITE Constellation Science Operations (BCSO)

A1. Target selection

A1.1. Guidelines for target selection are:

- Uniqueness of the science and suitability for BRITE Constellation
    - target stars with brightnesses V < 4
    - variations with timescales primarily of about one (1) hour to a few months
    - the scientific need for measurements through more than one filter

- Fields with greater science impact have higher priority, taking into account:
    - minimal spatial confusion of targets
    - cluster/association membership
    - minimal gaps in time between observing campaigns
    - supporting ground-based spectroscopy and/or other observations

A1.2. BEST can extend or overrule these guidelines if circumstances call for it; e.g. extending the target selection to fainter stars than V = 4

A2. Merging of targets and execution

A2.1. BEST selects groups of targets which are concatenated into fields (normally 24 degrees wide) selected to optimize the science return per field.

A2.2. BRITE Constellation observes fields in the order prioritized by BEST.

A2.3. To enhance the scientific returns of the BRITE observations, BEST created and supports a ground-based consortium called GBOT (Ground-Based Observing Team).

A3. Data policy

A3.1. For all data acquired in fields up to and including Field 47 (CasIV), reduced data (Category L2 as defined in Bylaw 5.2) will be made available by BEST as soon as possible to the Principal Investigators (represented by the Contact PIs; see below) who proposed them and whose proposals were approved by BEST.

> A3.1.1. If a target has been proposed by more than one person, the BEST Chair informs all proposers sharing that target and facilitates collaboration among them. The proposers must nominate one among them who acts as the Contact PI with the BEST Chair, and through the BEST Chair, with BEST.

A3.2. BEST expects a first status report on the data analyses from each Contact PI within three (3) months of their receipt of the reduced light curve(s).

> A3.2.1. If no report is received from a Contact PI after three (3) months of that PI's receipt of data, or if the report is considered by BEST to be insufficient, BEST can appoint a new Contact PI for that target.

A3.3. The proprietary period of BRITE Constellation data is one (1) year; i.e., raw and reduced data will be made public one (1) year after release to the Contact PI of a proposing team.

A3.4. A second status report from a Contact PI will be requested no later than one (1) month prior to the expiry of the proprietary period.

A3.4.1 The Contact PI may present a request to the BEST Chair for extension of the proprietary period. Such a request can be granted by BEST, but the extension of the proprietary period cannot be longer than six (6) months, unless the field or star in question is re-observed. In that case, BEST can extend the proprietary period for a given target or field based on the date of the public data release for the previous run.

A3.4.2 If BRITE Constellation data form a significant component of a Master's or PhD thesis, the Contact PI may request Thesis Protection for those data. Thesis Protected data are subject to all reporting requirements described in this document, but will remain proprietary for the duration of the thesis or until those data are published by the thesis candidate, whichever occurs first.

A3.5. On receiving a status report, BEST decides on: (a) extending the proprietary period if requested, (b) changing the Contact PI for the target(s), and/or (c) making the data public. Decisions are made on a star-by-star or field-by-field basis.

A3.6. The Final Report from a Contact PI must be submitted to the BEST Chair within twelve (12) months (or, exceptionally, eighteen (18) months) of the receipt of the data.

A3.6.1. If no Final Report is received from a Contact PI after twelve (12) (or, exceptionally, eighteen (18) months, or if the Final Report is considered by BEST to be insufficient, BEST can appoint a new Contact PI for the particular target(s).

A3.7. For all data acquired in Field 48 and later, data will be sent directly to the BRITE Public Archive following the approval by the Quality Control Team. No contact-PIs will be assigned to these observations.

Appendix B
Publication policy

B1. Each publication must include the footnote "Based on data collected by the BRITE Constellation satellite mission, designed, built, launched, operated and supported by the Austrian Research Promotion Agency (FFG), the University of Vienna, the Technical University of Graz, the University of Innsbruck, the Canadian Space Agency (CSA), the University of Toronto Institute for Aerospace Studies (UTIAS), the Foundation for Polish Science & Technology (FNiTP MNiSW), and National Science Centre (NCN)."

B2. The Contact PI for an approved proposal oversees the timely analysis and dissemination of the results and should seek involvement of BEST.

B.2.1 The Contact PI is the Principal Author of the resulting paper(s), or designates another member of his/her team to be Principal Author.

B3. For the first publication of a BRITE data set, all voting BEST members at the time the data were distributed, and key members of the BRITE Operations Team (as identified by the BEST Chair), must be invited to be co-authors.

B3.1. To be included in the author list, an invited BEST member must confirm willingness to be a co-author. No response means no co-authorship.

B3.2. BEST and other BRITE Team members who are co-authors will work with the Principal Author in preparation and editing of the manuscript.

B3.3. The BEST Chair will be the first point of contact with the Principal Author, ensuring that all BRITE co-authors receive manuscripts in a timely fashion and coordinating any internal discussions about the manuscripts regarding BRITE Constellation mission policies and Bylaws. The BEST Chair will convey to the Principal Author any concerns by BEST or the BRITE Operations Team re: BRITE mission policy and Bylaws in the best interests of the mission.

B3.4. Whether all invited BEST and BRITE Team co-authors are identified by name in the author list can be judged by BEST on a case-by-case basis. There are circumstances (based on page limits, etc.) where the author list could end with simply "… and the BRITE Team".

B4. The rules in Section B3 hold only until the first refereed paper in which a given BRITE Constellation data set is used has been accepted for publication. The rules apply to non-refereed publications (such as conference proceedings) published before a paper appears in a refereed journal. After a refereed publication is accepted, the data automatically enter the public domain

and it is no longer a requirement to invite BEST members to be co-authors on a publication based on those data.