

# Evaluation criteria

This document is a general guideline for evaluating STSM applications. The applications are evaluated on a 0 to 20 point scale, based on the following criteria:

- **Originality (max 3 points)** *Is the research goal or approach original?*
- **Feasibility (max 5 points)** *Is it feasible that the proposed goals can be achieved within the proposed timeline and resources?*
- **Fit with SCALES objectives (max 10 points)** *For objectives and point split between them, see below.*
- **Budget (0 points: unrealistic, 2 points: fair)** *Take into account also any non-SCALES funding, if relevant.*

In addition to the general categories outlined above, we should prioritise ECI/YRI applicants, applicants travelling to/from ITC countries, and those who have not yet received multiple STSM grants from SCALES. Based on these criteria, we will add or subtract points based on the following criteria:

- **ECI/YRI: +2 points**
- **Travelling to ITC country: +1 point**
- **Travelling from ITC country: +1 point**
- **Has received one STSM grant from SCALES earlier: -1 points**
- **Has received more than one STSM grant from SCALES earlier: -5 points**

In addition, we will promote gender equality by resolving ties in favor of non-male applicants.

## **SCALES core objectives – short version based on RCO:s and CBO:s**

1. **FAIR data (0-1 points)** – Data and any benchmarks related to the STSM will be made findable, accessible, interoperable, and re-usable (FAIR).
2. **Open-source tools (0-1 points)** – The STSM develops or makes use of open-source tools developed in/for SCALES.
3. **Transfer of knowledge (0-2 points)** – SCALES promotes understanding of experimental possibilities and theoretical needs, and exchanging insights and technical knowledge.
4. **Complementary approaches (0-2 points)** – SCALES promotes developing a common language between communities interested in similar topics while applying complementary approaches.
5. **Cross-disciplinarity (0-2 points)** – SCALES promotes cross-disciplinary missions for finding common ground outside typical comfort zones.
6. **Inclusion (0-2 points)** – SCALES will promote researchers starting out in their career, and especially encourage ECRs, women and those from underrepresented backgrounds to act as role models across a variety of marginalised communities. SCALES will specifically work to expand community building knowledge and initiatives to cultivate the growth of a positive research culture.

For reference, here are the SCALES objectives copy-pasted from the application:

## **OBJECTIVES**

In response to the challenges that have been highlighted above in Section 1.1.2, SCALES will set the following research coordination objectives (RCOs) and capacity-building objectives (CBOs) to address these challenges individually.

### **Research Coordination Objectives**

**RCO1** - SCALES will create findable, accessible, interoperable, and re-usable (FAIR) databases and benchmarks. This will include different experiments and the different regions of parameter space they probe, to aid comparison with theoretical models.

**RCO2** - The Action will create a repository of open-source numerical tools, and ensure training across communities in their use via schools and dedicated Workshops. In the first instance, this repository will include a numerical solver for the Gross-Pitaevskii equation (GPE) to study individual superfluid vortices, a vortex filament (VF) code for quantum turbulence simulations, a time-dependent density functional theory solver, and links to external open-source software such as the LORENE package to solve the two-fluid equations of superfluid hydrodynamics. In addition, the repository will provide a simple solver of the relativistic structure equation for neutron stars (the Tolman-Oppenheimer-Volkov (TOV) equations), as well as a simple solver for two-fluid hydrodynamics. The network further aims to expand the repository with other numerical tools during the Action. Note that while some of these tools are standard in the separate subcommunities, and in many cases are not complex to develop (e.g., solvers for the TOV equations are a standard technique in neutron star astrophysics, as are GPE solvers in the cold atoms community), the lack of experience in their use creates a barrier for researchers in other communities that may lead to easily avoidable inconsistencies in their application.

**RCO3** - Through Conferences, Short-term Scientific Missions (STSMs), and Workshops, SCALES will promote an understanding of the experimental possibilities and theoretical needs, especially regarding neutron star physics, in order to plan future laboratory experiments and fine tune them to the needs of the astrophysics community. These meetings will further serve as a platform for experimentalists to share insights, exchange technical knowledge, and collaboratively identify optimal strategies for future research directions. These synergies will foster the development of complementary experiments that leverage the strengths and mitigate the weaknesses of current experimental facilities.

### **Capacity-Building Objectives**

**CBO1** - The Action will promote the interaction between separate communities interested in the same physical processes from very different but complementary research areas, and help the development of a common scientific language and framework. This will be achieved mainly via a yearly Action-wide network meeting, in addition to targeted multidisciplinary Working Group (WG) meetings.

**CBO2** - SCALES will train a young generation of students and researchers to bridge the gap between communities and develop a multidisciplinary approach to their research, setting the basis for ground-breaking discoveries. This will be pushed forward via Training Schools but also with targeted hands-on sessions during WG meetings and STSMs. This

will ensure that the next generation of researchers has a shared set of tools in which they are trained, and standards that are applied to their results.

**CBO3** - SCALES will provide guidance to researchers starting out in their career, and especially encourage ECRs, women and those from underrepresented backgrounds to take leadership roles in the Action. This will provide role models across a variety of marginalised communities. This is crucial, given the extremely poor gender balance and representation of other minority groups currently present in European scientific environments, especially in experimental laboratories. SCALES will specifically work to expand community building knowledge and initiatives such as those that have been developed in the astronomy community in recent years into the low-temperature communities to cultivate the growth of a positive research culture.