

# PROJECT APPROVAL

## The Science Infrastructures

AN INTEGRATIVE INFRASTRUCTURE FOR THE SCIENCES AS ONE BODY OF  
KNOWLEDGE

**Document:** SCS/PA/2026/05  
**Status:** Approved  
**Date of Approval:** October 30, 2026  
**Project Initiated:** October 21, 2026 (ongoing)  
**Authority:** Founder, as sole Director during the Initial Period (§8.1, §14.5 and §14.6 of the Bylaws); classification under §A.4 of Schedule A (SCS/SCH-A/2026/01/Rev. 1)  
**Type:** PA, Project Approval, under the Document Type Code Standard (SCS/STD/2026/01)

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## 1 Project Identification

**Project Name.** The Science Infrastructures.

**Description.** The Science Infrastructures is an open, integrative infrastructure for learning, using and researching the sciences as one connected body of knowledge, in theory and in practice. It has three tiers. Foundation libraries hold mathematics, computation, physics and inference. Each science is a domain: a library of its own objects and models, tested against published references, that runs on its own with only the domains beneath it. Applications and studies, organised by purpose, compose the domains they need. As of the date of this Approval, four foundation libraries and sixteen domains have code, among them the sciences of the Earth and the sky, neuroscience, history, genomics and evolution, economics and robotics; ten applications draw them, among them the Earth, Celestial and Brain Atlases, the History Complex, the Genome Workbench, the Economy Atlas and Cosmopoiesis; and the whole is checked by some seven thousand automated checks against authoritative references and closed-form results.

**Repositories.** The Project consists of the following public repositories, each under the account [github.com/huangwanhong-maker](https://github.com/huangwanhong-maker):

- **The-Science-Infrastructures**, the domains, shared edges, applications and documents;
- **calx**, **morphe**, **physis** and **tyche**, the foundation libraries of computation, mathematical structure, physics and chance;
- **neuroscience**, a domain kept as a repository of its own; and
- **Cosmopoiesis-Lab**, a framework for constructing and simulating physical worlds.

A foundation, domain or application of the Project that later becomes a repository of its own

belongs to the Project on the same terms, by carrying the record of contributors described in §3.

**Motivations.** The sciences are taught and practised apart, yet the same structures recur across them: symmetry and its representations, conservation laws and the equations that express them, networks, sequences and grammars, and inference under uncertainty. An infrastructure that holds the sciences together makes these connections explicit, and lets one tested implementation of each method serve every science. The Society’s own theoretical work reaches for the same structures: the two-complexes and  $k$ -complexes of  $G^3$  (SCS/PA/2026/03), the holonomy and circulation of value in Fluid Dynamics in Sociological Systems (SCS/PA/2026/04), and the spin foams of the Society’s models of social and epistemic structure. The Project implements these structures once, openly and tested, for every use.

**Objectives.** The Project pursues the following objectives:

1. to hold the general mathematics, computation and physics of the sciences in foundation libraries, each method written once and verified against authoritative references;
2. to bring every science, the social sciences and the humanities among them, into the infrastructure as a domain, in an order set by what each depends on;
3. to serve three activities, each artefact saying which it serves: learning (derivations, worked examples and expositions), use (tools whose numbers can be relied on) and research (open questions and new results); and
4. to keep the whole open, so that anyone may learn from it, use it, change it and continue it.

**Expected Outcomes.** Open-source foundation libraries and domain libraries, each with its checks and its theory notes; applications through which the domains can be seen and used; research results in the Project’s notes and papers; and a record of decisions, kept in the Project’s own decision log, from which the reasons for its present form can be read.

**Maintainer.** Wanhong Huang, who began the Project before it joined the Society and remains its maintainer.

## 2 Infrastructural Domain Classification

**Primary classification.** The Project is classified under **Schedule A, Domain I: Theoretical and Ontological**, articulated in Schedule A (Rev.1) as “seeing clearly how people are really bound to one another, and giving that understanding a precise, shared language.”

**Secondary classification. Domain VI: Educational**, “teaching the next generation how to truly listen, how to feel, and how to live in relationship, not only how to test and compete”; and **Domain II: Epistemic**, “coming to truly know and trust one another, instead of mistaking our own reflections, or a machine’s, for the other person.”

**Reasoning for the classification.** The classification rests on the following considerations.

1. **A precise, shared language of structure.** The Project’s foundations implement the formal languages in which relational structure is stated exactly: complexes and their ho-

mology, groups and their representations, gauge fields and spin foams on two-complexes, and flows with their circulation. These are the languages of the Society’s theoretical work, and the Project makes them executable and verifiable for everyone. This is the sense in which Domain I asks for “a precise, shared language.”

2. **Relations among people, read in that language.** The Project’s domains of the human sciences apply these structures to how people are bound to one another. The history domain records lives and the ties between them as a two-complex, and reads the signs of those ties as the spin foam of a gauge theory. The economics domain treats value as something carried between positions, whose loop deficits vanish exactly when a system of prices exists. Both are direct contributions to “seeing clearly how people are really bound to one another.”
3. **Methodological character.** Much of the Project’s content, the figure of the Earth or the ephemerides of the planets, names no relation between persons. The classification does not rest on that content. It rests on the Project’s character as one shared language in which the natural sciences and the relational sciences are written alike, as the approval of  $G^3$  reasoned for a methodological toolchain.
4. **Educational.** Learning is one of the three activities the Project serves by construction. Its theory notes are written to be understood, its applications carry guided tours, and all of it is open to anyone without credential or fee: an education offered as shared inquiry, outside the economy of tests and competition.
5. **Epistemic.** The Project keeps what is known apart from what is assumed. Every implemented number is held to a named reference, with its source and date of retrieval; every reading of its instruments says whether it was observed, modelled or assimilated; a computation asked outside its domain of validity refuses with a reason instead of answering. Where a language model drafted content, as with the history domain’s canons, that content is marked unchecked until it is checked against its sources. These are practices against mistaking a model’s reflection for the world.

**Cross-domain applicability.** Specific applications of the Project may, when carried out, fall under other domains of Schedule A: an application to collective decision under Domain IV, to co-creation under Domain V. Each such application is assessed when it is undertaken; the classification above reflects the Project’s own character.

### 3 Publication, Licensing and Intellectual Property

**License.** The MIT License, in every repository of the Project, with copyright held by **Wanhong Huang and the contributors** recorded in each repository’s `CONTRIBUTORS.txt`. The Society holds no copyright in the Project.

**Project Terms.** For the purposes of the Intellectual Property Policy (SCS/POL/2026/01), the Project Terms are these:

1. **Non-retention confirmed.** The default of the Policy (§4, paragraphs (14) and (15)) applies without variation. The Society claims, retains and reserves no copyright, patent, database right or other intellectual-property right in the Project, and receives no licence

beyond the public licence that everyone receives. The Society has no power to relicense the Project.

2. **Ownership by the creators.** Each contributor keeps the copyright in what they contributed, according to the law applicable to the work.
3. **Inbound equals outbound.** Each contribution is licensed, when submitted, under the same MIT License as the repository, to everyone. No contributor assigns any right, and no contributor licence agreement is required, with the Society or with anyone. Each commit carries a sign-off by which its author makes the Developer Certificate of Origin 1.1.
4. **The record of affiliation.** Each repository's `CONTRIBUTORS.txt`, together with the repository's history, is the Project's record of affiliation under §5 of the Policy. It states the terms above and names each contributor. A determination of affiliation, should one be needed, is made by the Project's contributors first and referred to the Board only under §5, paragraph (20), of the Policy.
5. **AI assistance.** AI systems used in writing the Project are recorded as tools. They hold no rights and are not contributors; the person who submits AI-assisted material is its contributor and answers for it.
6. **Unclaimed contributions.** A contribution whose author cannot be identified remains under the MIT License. The Society records it and, to the extent any right in it requires a holder, holds it only in Custodial Holding under §6 of the Policy, never for its own benefit.
7. **Material of others.** Third-party material in the repositories keeps its own licence and notices, as each `CONTRIBUTORS.txt` lists. Datasets are fetched by the Project's data library and never committed, and keep their own licences. Three screenshots in the Project's gallery that show forecasts of the Pangu-Weather model are shared under CC BY-NC-SA 4.0, the licence of the model's parameters; the Society's presentation of the Project does not use them.
8. **The Society's name.** The Society's name and marks remain the Society's under §2, paragraph (6)(c), of the Policy. A fork of the Project needs no permission; it does not carry the Society's endorsement.

### Reasoning.

1. **The Policy's default.** Non-retention is the Society's default for every project. The Project, begun by its maintainer before it joined the Society, gives no reason to depart from it.
2. **The constraints of the Initial Period.** During the Initial Period the Society accepts no donation or other transfer of value from a natural person other than the Founder (§14.10(a)) and enters no contract longer than twelve months (§14.11(a)). An assignment of copyright from a contributor would be the first; a contributor licence agreement with the Society, of indefinite duration, would be the second. Licensing inbound equals outbound, with a certificate of origin, needs neither.
3. **A commons that does not depend on its steward.** The MIT License is permissive

and cannot be withdrawn from a copy already received. Because no one holds exclusive rights over the whole, anyone may continue the Project, with or without its maintainer and with or without the Society. The Project is meant to be continued in this way.

4. **Commercial use by others.** The MIT License permits commercial use. Any income from such use belongs to those who use the work and never reaches the Society. The limitation of §14.12(a) governs the Society’s own activities, and the Society earns nothing from the Project.

**Asymmetry with prior Project Approvals.** The approvals of G<sup>3</sup> (SCS/PA/2026/03) and of Fluid Dynamics in Sociological Systems (SCS/PA/2026/04) place copyright with the Society. Both preceded the Intellectual Property Policy, and both concern works written for the Society. The present Project was an independent work with its own repositories, licence and decision log before it joined, and it is meant to be continued by anyone. The difference is deliberate.

## 4 Ethics Review Determination

**Determination.** Ethics review under §3.5 of the Bylaws is **not required** for the Project at its present scope, subject to the conditions below.

**Reasoning for the determination.** The Project, at its present scope:

- involves no human subjects, and collects no data from any person;
- processes no sensitive personal data of identifiable persons;
- involves no vulnerable population;
- conducts no biomedical or psychological research on persons. It uses published, openly licensed and de-identified data: EEG recordings of PhysioNet’s EEG Motor Movement/Imagery Dataset, fMRI maps of the Individual Brain Charting project through NeuroVault, standard brain templates and atlases, and the reference sequence of the human mitochondrion; and
- treats historical persons only as figures of the public historical record.

Where an application accepts a user’s own files or sensors, the software runs on the user’s own computer, and the Society receives nothing.

### Conditions.

1. **Personal data.** Any work that collects data from persons, or that uses identifiable or sensitive personal data, including the genomes of individuals and recordings of recruited participants, constitutes a separate project for the purposes of the Society’s project approval and requires ethics examination before it begins.
2. **Dual use.** The Project’s genomics analyses published reference sequences, among them that of SARS-CoV-2, with general methods of alignment, annotation and phylogeny. Work on drug discovery, which the Project plans, and any work on pathogens beyond the analysis of published reference sequences, is screened for dual-use concern before it begins.
3. **Research integrity.** Content drafted by a language model, such as the canons of the

history domain, remains marked unchecked until it is checked against its sources, and results drawn from it are presented as provisional.

4. **Until the policies are adopted.** The Society's Ethics Review Policy and Dual-Use Research Policy are not yet adopted as substantive instruments. Until they are, the screening of conditions 1 and 2 is made by the Founder and recorded in the Project's record.

## 5 Conduct within the Initial Period

The Project is conducted within Article XIV of the Bylaws as follows.

1. **Category of activity (§14.12(a)(i)).** The Project is volunteer-based cooperative research and scholarly writing, without income. The Society charges no fee and offers no paid service in connection with it. The Society's earlier approvals already include open research software; to the extent that the stewardship of an existing infrastructure of several repositories is regarded as a new category within §14.12(a)(i), this Approval is the written rationale that §14.12(b) requires.
2. **No transfer of value, no contract (§14.10, §14.11).** The Society receives no assignment, licence, donation or other transfer of value from any contributor, and enters no agreement with any contributor. Each contributor's licence runs to the public.
3. **No financial flows (§14.12(c)).** The Project involves no payment to or from the Society.
4. **Jurisdictions (§14.12(e)).** The Society presents the Project on its own website. The public instances of the Project's atlases on a server operated by the maintainer remain the maintainer's own and are not, by this Approval, an activity of the Society. They may be brought under the Society by an amendment of this Approval, once the legal basis in the server's jurisdiction is documented in the permanent records and a privacy notice covers the server's records of visitors.
5. **Records (§14.14, §14.15).** This Approval, and the Notice announcing it, are entered in the monthly working log for October 2026. A contributor who corresponds with the Society in the Society's name is screened as a named individual under §14.14. The Project creates no partnership, contract or consultancy to be disclosed under §14.15; it is reported as a project of the Society.

## 6 Stewardship

1. **The Society's part.** The Society keeps the record of the Project in its permanent records (§5.11), presents the Project on its website, and reports on it under §3.4. The Project's page is <https://serendip.ngo/science-infrastructures/>. The Project's own release notes are its running account of progress, and the Society's reports summarise them.
2. **The maintainers' part.** The technical direction of the Project, its structure, conventions and priorities, remains with its maintainers, who record their decisions with their reasons in the Project's own decision log. This Approval is recorded there as the Project's decision 0057.

3. **Ending the stewardship.** The maintainers may end the Society’s stewardship by written notice to the Society, and the Society may end it by an instrument of its own. Either is recorded in the permanent records. Nothing is transferred on ending, because the Society holds nothing, and neither the Project nor its licence is affected.
4. **Dissolution.** On dissolution of the Society, the Society holds no asset of the Project to distribute under Article VI. Its record of the Project passes with its other records.

## 7 Authority and Effective Date

This Project Approval is issued by the undersigned Founder, as sole Director during the Initial Period under §14.5 and §14.6 of the Bylaws, exercising the powers of the Board under §8.1, and classifying the Project under §A.4 of Schedule A. The Project was initiated on October 21, 2026, before it joined the Society, and is ongoing; this Approval brings it under the governance framework of the Society as of the date set forth above. The Society shall maintain this Project Approval, together with all subsequent records relating to the Project (including amendments of the classification, the Project Terms or the ethics determination, and any end of the stewardship), in the permanent records of the Society pursuant to §5.11 of the Bylaws. It is identified under §5.16 and published with a trustable timestamp under SCS/PGD/2026/01.

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### APPROVED BY

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Wanhong Huang, Founder  
Serendip Commons Society  
Date: October 30, 2026