

COSMOLOGY & FINE-TUNING
RESEARCH PROGRAM

A REQUEST FOR PROPOSALS

A pilot program of the

JOHN TEMPLETON FOUNDATION

Deadline for Proposal Summaries:
October 31, 1999

Deadline for Full Proposals:
December 31, 1999

Announcement of Awards:
March 20, 2000

BACKGROUND

The John Templeton Foundation has made \$1 million available for research grants relevant to the question "is there evidence of universal purpose in the cosmos?" This is a science-focused research project and is expected to result in publications in peer-reviewed journals or books. Examples of relevant research areas include developing new empirical insights which might illuminate and help quantify the extent to which the Universe can be said to be fine-tuned for life (in e.g. cosmology, physics, chemistry and biology). This may include exploring associated interpretive aspects involving ontological and teleological implications, but projects should be primarily focused on new and innovative scientific research. The deadline for proposal summaries is October 31, 1999.

TOPICS:

Topics that fall within the scope of this program include research in physics, cosmology, biochemistry, neuroscience and mathematics

- ◆ quantifying the extent to which the Universe can be said to be fine-tuned for life.
This may include studying the effect of changes in
 - initial conditions
 - fundamental constants of physics
 - laws of physics in a variety of contexts, for instance
 - early-universe cosmology
 - cosmic structure formation
 - production of heavy elements in stars
 - origin and evolution of life
 - origin of an arrow of time
- ◆ closely related philosophical, theological, biological & economic studies impacting directly and substantively on the topical focus of the program and relating to issues such as
 - fine-tuning impact on aspects of life which might have relevance to the general question of purpose (increase of complexification, development of consciousness, free agency, altruism, mind-directed creativity, etc.) This might include, for example, studying the effect of changes in
 - the origin of mathematical rationality and the laws of physics
 - the nature of freedom, consciousness, free will and mental creativity in intelligent beings
 - logic and epistemology
 - teleology in economic and biological/evolutionary systems
 - philosophical and theological research on the theodicy problem and related issues
 - concepts of universal purpose/teleology in relation to scientific forms of inquiry
 - concepts of God within scientific cosmology
 - the creative potential of intelligent beings to impact the course of evolution of life in the cosmos/cosmic ensemble

Examples of previously published work in these categories can be found at <http://www.templeton.org/cftrp.asp>

AIMS:

This is a science-focused project. Its aim is to develop new and useful scientific (and closely-related philosophical) insights appropriate for reporting in peer-reviewed scientific journals or in peer-reviewed academic books of the highest caliber. The program aims to stimulate excellence in research and writing and especially in creative interdisciplinary cross-fertilization on a subject theme which naturally draws together a wide range of expertise from the sciences, philosophy, mathematics and theology. Proposal evaluation will be based upon the following criteria of merit:

- ◆ Potential for contribution to basic science relevant to the topic of inquiry
- ◆ Intrinsic research quality and innovativeness: how likely is the proposed research to yield new insights?
- ◆ Qualifications of the applicant with respect to proposed topic
- ◆ Persuasive clarity of the connection between the proposed research and the thematic question of the Request For Proposal (RFP)

Studies should be focused on knowledge-seeking and should be methodologically exploratory. Investigations pursuing both sides of the question of evidence of purpose are invited. Proposals will be evaluated based on intrinsic merit and not on a sense of the expected outcome or the findings either pro or con on issues of metaphysical interpretation in relation to topics of cosmological purpose or design.

ELIGIBILITY:

Applications may be submitted by public or private non-profit organizations such as:

1. Universities and colleges
2. Non-profit, non-academic organizations: research laboratories, professional societies, and similar international organizations directly associated with education or research activities.
3. Unaffiliated organizations: Scientists and educators may be eligible for support, provided that the Principal Investigator (PI) must have completed requirements for an advanced research degree and possess sufficient training and experience to accomplish the proposed work, and the proposer agrees to fiscal arrangements which ensure responsible management of John Templeton Foundation funds.
4. Federal agencies: Proposals for studies by researchers holding positions in federal agencies will be considered if the proposer has suitable academic training and a good record of published research.

COMPETITION CRITERIA

Grants are available to support researchers working in academic and other research-active institutional contexts for projects of up to three years duration and up to not more than \$150,000 per grant. Part-time efforts in parallel with the scientist's usual research are mainly encouraged, with between 15% and 40% of the time being supported by the project and spent working on its research topic. Examples of acceptable use of grant funds include:

- ◆ Student or postdoc salary and benefits for part of the academic year
- ◆ Summer salary (and benefits if required) for faculty members
- ◆ A suite of several smaller correlating sub-projects distributed amongst members of the research group of the Principal Investigator's core grant
- ◆ Collaborative research gatherings of key researchers to work together for a week or two on one or more occasions
- ◆ Modest (less than 20% of the total grant) expenses for computer equipment, travel, publication charges and supplies, provided that these items are clearly explained and justified in the proposal
- ◆ The highest allowed overhead rate is 20%

We discourage straight full-time support for student or postdoc support. Tight budgeting is encouraged in order to maximize the research impact of the project as a whole, with emphasis on scientific return per dollar rather than per proposal. The bulk of the funds is expected to go to research in the physical sciences, with some small grants available for the adjunct philosophical scholarship. Applications for philosophical work are discouraged unless they connect in some highly relevant and analytical way with physical science.

SELECTION PROCESS:

Proposals submitted in response to this invitation will be evaluated and ranked in regard to the previously-mentioned criteria. The review will be carried out by experts in the relevant fields, and will consist of three phases. First (Phase 1), a screening committee will review preliminary proposal summaries and send invitations for submission of full proposals to no more than 50 applicants. Second (Phase 2), external reviewers will provide narrative reviews of the proposals as well as quantitative summary scores. Third (Phase 3), a review panel will convene to produce a final rank-ordering of the proposals. A cumulative total of US\$1 million will be awarded. It is projected that approximately 15 research projects will be awarded.

COMPETITION DATES:

1. Proposal summaries should be received no later than October 31, 1999.
2. Invitations for submission of full proposals will be transmitted by November 30, 1999. (Invitations will be made to not more than 50 applicants.)
3. Full proposals should be received no later than December 31, 1999.
4. Grant award announcements are expected to be made by March 20, 2000.

APPLICATIONS:

For Phase 1, applicants should arrange for an original and three copies of the following:

- ◆ A Phase 1 cover sheet which can be found at <http://www.templeton.org/cftrp.asp>
- ◆ A one-page summary of the proposed research. Please include the name of the institution and of Principal Investigator(s), and approximate cost of the project

- ◆ A curriculum vitae of the PI(s)
- ◆ Names and addresses of at least three people who are familiar with the qualifications of the applicant and/or qualified to evaluate the proposed work (who may be contacted by the review committee if necessary)

To be sent to:

CFTRP-1 Program Competition
John Templeton Foundation
Suite 100, Building #5
Radnor Corporate Center
100 Matsonford Road
Radnor, PA 19087

Received no later than October 31, 1999. E-mail applications are not accepted.

The main part of the Phase 2 proposal will be limited to 10 pages. Details on Phase 2 application procedures will be made available after the initial screening is completed (by November 30, 1999.) Specific application guidelines, template application forms and rules for electronic submission are available on the John Templeton Foundation website at <http://www.templeton.org/cftrp.asp>. Queries on formal administrative matters may be directed to Mrs. Linda Kelly at the John Templeton Foundation. Phone: (610) 687-8942; Fax: (610) 687-8961; cftrp@templeton.org.

THE JOHN TEMPLETON FOUNDATION AND "THE HUMBLE APPROACH"

The main aspect of vision and mission of the John Templeton Foundation is to pursue new insights at the boundary between theology and science through a rigorous, open-minded and empirically-focused methodology, drawing together talented representatives from a wide spectrum of fields of expertise. This has been described as the "humble approach." Typically it seeks to focus the methods and resources of scientific inquiry on topical areas which have religious and theological significance ranging across the disciplines from cosmology to healthcare. The Foundation sponsors a wide variety of project initiatives pursuing the 'humble approach' in basic research, in pedagogy, in promoting high-level dialog, and by awarding prizes for excellence in research, writing, and teaching. Further information describing the donor intent for the John Templeton Foundation may be found in: (i) *The Humble Approach* (1995, 2nd edition forthcoming) by John Marks Templeton; *Worldwide Laws of Life* (1997) by John Marks Templeton; and on the Foundation's website at <http://www.templeton.org>.

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