Job Description

(by Brian Fraser)

Title: Information Developer, third-generation physics

Search Words: LENR, CANR, electronuclear, NASA BPP, antigravity, propellantless

Job duties

1. Develop the Physics of Space/Time Ratios according to **Methodology of Development.** This will require extensive literature searches and consultations with physicists, astronomers, mathematicians, archivists, and other disciplines. Activities commonly called "brainstorming" and "cross-fertilization" will be useful. Ideas will be documented in a form suitable for internal peer review. Initially, review criteria will include only logical clarity, simplicity, credible construction, and utility. (See examples)

2. Identify applications of the new science in commercial, military, aerospace and other fields. Examples might include:

   - propellantless propulsion with speeds comparable to light
   - safe, inexpensive destruction of commercial radioactive waste at the power plant
   - robust, safe, atomic power from inexpensive, readily available materials
   - automotive applications for the new kinds of atomic power
   - tutorials on third generation physics which might include:
     - the spin structure of the photon, subatomic particles, atoms, and charges
     - fundamental explanations of gravitational, magnetic, and electrostatic forces
     - explanations for quantum interference (both spatial and temporal)
     - explanations for quantum non-locality
     - explanations for many paradoxes and long standing problems in physics/astronomy
     - PowerPoint® presentations about the new physics and/or applications

3. Participate in equipment design and laboratory work as required.

4. Participate in community educational enrichment outreach for the new science. This is intended to help with future recruiting and funding. Presentations to the general public should be suitable for a high school senior physics class.

Rationale for this position

This is not an established position within the physics community and has no DOT code (but see 023.061-014 for physicist/astronomer).

The rationale for this position is based on the premise that:

1. All equations of physics can be re-written in terms of pure space/time ratios (s/t or t/s with various exponents). There are no separate units for mass or charge. The ONLY units allowed are space and time. Example: In the equation $E = mc^2$, the units of c are space/time. For the equation to be dimensionally consistent, E and m must also be expressible as some kind of space/time (or time/space) ratios.

2. Space and time constitute the "bottom layer" of the physical universe. Going "beyond space and time" takes us outside the physical universe and is therefore a subject for philosophy or religion, not modern science.

3. Humans possess an intuitive understanding of space and time, and so an understanding at this lowest level should make everything above it clear and free of mysteries. All the questions connected with gravitation, for example, should have straight-forward answers. So should all the mysteries of quantum mechanics. The ability to state all physical relationships in terms of *one* concept (space/time ratios) should eventually lead to the development of a unified general theory.

4. This understanding should lead to insights which will foster extraordinary advances in science and technology. Specifically, these insights could be of considerable use in the NASA Breakthrough Propulsion Physics program (propellantless propulsion, speeds greater than light, new atomic energy sources, and third-generation physics)

5. Extraordinary advances in science and technology are often held back unnecessarily by social and political factors.

Methodology of development

Frontier physics has no sign posts and its development can easily wander off into the weeds. A researcher can start with an *incorrect* premise and then *correctly* develop all the consequences of that premise, but the final result will be useless, even misleading. Finding the right answers to the wrong questions is clearly a waste of resources.

In ground-breaking research there is inevitably a certain amount of waste and exploration of dead-ends. But hopefully, these can be minimized by incorporating these principles:

1. For this position, the methodology must be inductive. Development must start with particular facts and then proceed to more general principles that would encompass those facts. Development must NOT start with a theory and then attempt to find some facts to "prove" the theory. This is NOT an opportunity for people to develop their pet theories. Development must start with real facts and stay close to them throughout the development.

2. Logical clarity and simplicity are important in any scientific explanation. But this is especially true at the "bottom layer" of the physical universe. If the explanation is not simple and logically clear, then it is probably not correct or complete:

   "We have come to the conclusion that what are usually called the advanced parts of quantum mechanics are, in fact, quite simple. The mathematics that is involved is particularly simple, involving simple algebraic operations and no differential equations or at most only very simple ones. The only problem is that we must jump the gap of no longer being able to describe the behavior in detail of particles in space." " *The Feynman Lectures on Physics*, Feynman, Leighton, Sands, (1965) Vol 3, p. 3-1

   "All physical theories . . . ought to lend themselves to so simple a description that even a child could understand them." —Albert Einstein

   "However, if we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few scientists. Then we shall all, philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist." —*A Brief History of Time*, Steven Hawking, 10th ed. (1998) p. 191

   Note that although the destination of simplicity is valued and possible, the route to get there is probably very convoluted and difficult.

3. The focus must be on what is required, not on the tools that are available. The question must be not "What can we do with our tools?" but rather "What kinds of questions need

answers?" Science today has plenty of data and plenty of history. What it needs now are plenty of simple, logical explanations.

4. Departure from "conventional wisdom" will often be required. Creativity is to be encouraged and managed. The end result however, must anchor solidly in proven, demonstrable facts.

Required reading for managers and applicants

Creativity in Science and Engineering, Ronald B. Standler,1998, http://www.rbs0.com/create.htm

NASA Breakthrough Propulsion Physics program (Millis, M., "NASA Breakthrough Propulsion Physics Program", NASA/TM-1998-208400, (June 98) (9 pg.). http://www.grc.nasa.gov/WWW/bpp/TM-1998-208400.htm

Microwave experiments prior to 1900
http://www.tuc.nrao.edu/~demerson/bose/bose.html

Childbed fever and Ignaz P. Semmelweis
http://www.uh.edu/engines/epi622.htm
http://www.sciencecases.org/childbed_fever/childbed_fever.asp

Impossible, idiotic inventions we now use
http://www.alternativescience.com/skeptics.htm

Famous bad predictions
http://rinkworks.com/said/predictions.shtml

Education

There are currently no accredited (or even *un*accredited) university classes in the physics of space/time ratios, nor is this an officially recognized field of study.

Applicant must be *conversant* in college level physics, chemistry, astronomy, mathematics (calculus, linear algebra, matrices, vectors, etc). This implies at least a couple of years of college science and math classes or their equivalent.

Too little formal education may be a hindrance to being conversant in the language of science. However, too much formal education can be a hindrance too, as it may hinder creativity and exploration of "undomesticated" alternatives. "Thinking *outside* the box" is going to be difficult for people who have spent much of their lives living and thinking *inside* the box!

> "It is a miracle that curiosity survives formal education."—Albert Einstein

Additionally, college classes tend to prepare the student *for the next course*, instead of preparing him to do original, ground-breaking research.

On the other hand, development of the messy details of practical applications and theory might best be done by people who have highly focused education and experience in physics, chemistry, materials science, engineering, and mathematics.

Again, the concepts of "cross-fertilization" and "a good mix" are important here.

Special skills/temperament required

This position requires:

1. A passion for understanding the "bottom layer" of the physical universe
2. Strong problem-solving and investigative skills, coupled with patience and discernment.
3. A solid respect for facts.
4. The ability to do scientific literature searches and "brainstorming" with fellow scientists.
5. The ability to write, present findings, and create enthusiasm.
6. An understanding of how science actually works (not just how it is supposed to work)
7. A desire for order, logical clarity, and uncluttered thinking.
8. The ability to tolerate confusion, chaos, frustration, and occasional ridicule.

Work hazards

Work environment may include hazardous equipment, hazardous chemicals, lethal voltages, liquefied gases, high pressures, lasers, etc., as well as exposure to unknown hazards associated with undiscovered or poorly understood phenomena.

Salary

(what is this position worth?)