DRAFT PROPOSAL

Artist-in-Residency at Massachusetts Institute of Technology

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An Artist-in-Residency at the Massachusetts Institute of Technology would help find a common ground between the traditional aesthetic concerns of art and the advanced materials, processes and technologies of science. Additionally, it would offer me the opportunity to bring my insights as an artist to the leaders of America's technological future and to the American public. Finally, and fundamentally, it would allow me to create art of lasting importance.

The opportunities for a resident sculptor at M.I.T. are great, and may not all be immediately evident; yet three existing components would, I believe, anchor a successful artist-in-residency.

1): Transmutation. The transmutation of technetium 99 to ruthenium 100 via neutron capture within the Nuclear Engineering Department using the MITR-II research reactor.
2): Prototype. Creating a prototype sculpture with transmuted material using the resources available at MIT.
3): Consulting and teaching with the faculty and students. Being available to the larger community through M.I.T.

Additionally, as a new project, I am very interested in the current research conducted by the Nuclear Engineering Department on plutonium storage and non-proliferation issues.

The remainder of this draft proposal will examine these elements in greater detail.

TRANSMUTATION

To date, a crucial component of my efforts to integrate art and science is the transmutation of technetium 99 to ruthenium 100 using neutron capture. Technetium was the first man-made element, produced at the dawn of the nuclear age with early accelerator technology. Later, technetium was produced in quantity as a by-product of fission; tons of it reside in spent reactor fuel today. With a half-life of 213,000 years and an energetic decay (radiation) technetium 99 is representative of unresolved concerns over long-term management of spent reactor fuel (radioactive wastes).

Ruthenium 100, the end product of my technetium 99 transmutation, is a uniquely appropriate material for sculpture. As a member of the platinum family of metals (corrosion resistant, noble and precious) it is eminently suitable for the creation of art. As a non-radioactive product of nuclear process, created from a long-lived fission product, its symbolic value is unmistakable. In short, this artistically driven transmutation will serve as the quintessential metaphor and symbol of the nuclear age. Happily, the aesthetic requirements of metaphor and symbol are small in volume: milligram quantities of transmuted material are sufficient for my artistic purpose. I envision using this transmuted material in very thin deposits upon a sub-stratum through electro-spark deposition, electro-plating or other advanced fabrication technology available through my residency at M.I.T.

DRAWING AND SCULPTURE

Throughout the residency I will create drawings, models and test-pieces on a continuing basis. These works will be accessible to the faculty and students at M.I.T. through their informal display in the office/studio where they are produced. By the end of the year these art-works will comprise a collection substantial enough to anchor a major exhibit and illustrate the interdisciplinary accomplishments of the residency. These works would, however, be peripheral to my central focus: the creation of a single, finished sculpture that will combine the skills and materials of a traditional sculptor with the advanced materials and processes available in the Nuclear Engineering program at M.I.T.

The sculpture would be composed of three tightly integrated material elements: a) carved stone; b) glass and/or ceramics; and c) advanced metal alloys (stainless-steel, titanium, transmuted ruthenium, zirconium, etc.) in cast and fabricated forms. The sculpture as a whole would represent images of the nuclear age, while its various components would reflect the processes and technologies, the problems and accomplishments, that this age has produced.

Depending upon budget considerations and funding source, the prototype sculpture could take a number of forms. Two options (in declining order of preference) are:

1) A site-specific sculpture commissioned for the permanent art collection of M.I.T. would be the ideal choice. A commission in the range of $250,000, would permit me to create a sculpture that would be both a tangible and lasting expression of the collaboration inherent in my artist-in-residency and a valuable addition to M.I.T.'s already distinguished sculpture collection. Alumni, patrons, corporations or other institutions associated with M.I.T. might be willing to underwrite such a work and I would be willing to donate my time and one or more Breeder-Blanket Assemblies as a material component for this sculpture. (see budget #1)

2) A prototype sculptural element for my primary-project, designed for the Hanford Nuclear Reservation, would be a worthy accomplishment of an artist-in-residency at M.I.T. This prototype (comprised of carved stone, advanced metal alloys and transmuted material), would be the first tangible part of a major sculptural grouping, and would serve as a symbolic representation of M.I.T.'s visionary contributions to many of the nation's high-technology endeavors. I believe that in light of this most promising collaboration, Siemens AG of Germany, (who donated 12 Breeder-Blanket Assemblies from the SNR 300 fast reactor for artistic use) might be willing to help underwrite the completion of this initial prototype during a residency at M.I.T. I would also seek funding from the Hanford community. (see budget #2)

Each of the two possible sculptures outlined above would have much in common: Both would be created from stone, advanced metal alloys and transmuted materials - both would use images, processes and technologies of the nuclear age. The differences are those of scale, cost, length of time to create, and final ownership and site of the finished work. I have made an effort to clarify this distinction with two budget outlines appended to this proposal.

In sum, the sculpture will not only fuse art and science but also give vision and creative direction to the responsible use of a technology of the future. I believe that the potential is unmistakable and the probability of success extremely high.

CONSULTING AND TEACHING

Perhaps the principal contribution a sculptor-in-residence would make would be the artist's insight into the multiple worlds he is exposed to. An artist-in-residence at M.I.T. might provide the engineering and science departments with studied but artistic interpretations of the valuable work produced there, and the art department with the skills of a professional artist involved in the application of advanced technology in the arts, (e.g.:

* Graduate engineering students would have the opportunity to explain their project to me in an informal setting. As I am representative of the non-technical community, my ability to understand their work, and explain it back to them, would offer a valuable experience in communication. Through the wide-ranging conversational structure of such a setting, topics of broader societal merit and value would arise.

* Art students would have a singular opportunity to learn first-hand the complexities involved in a major, mixed-media and technology-based sculpture. Also, the practice of stone-carving, a vanishing skill, could be offered.)

For the community as a whole I would like to give periodic mixed-media performance/ presentations (lectures) on the progress of my residency, my understanding of the events surrounding me and the artistic development they were catalyzing in my work.

Lastly, I have just completed an artist-in-residency with the Seattle Public School System working with middle and high-school students in an alternative/transitional setting. The project involved using my artistic skill to clarify issues of nuclear technology. I found this experiment successful (if exhausting) and suggest that it might prove a useful model for a way that M.I.T. might bring my residence to the larger community, time permitting.

NEW PROJECTS

The artistic use of plutonium has been a long-term goal of mine since my first interest in nuclear technology. I see this man-made material as a most problematic element in humanity's entrance into the nuclear age. I believe that I could make an artist contribution to the current work of the Nuclear Engineering Department at M.I.T. in addressing issues of non-proliferation, isolation, and storage. Initial ideas include transmuting/denaturing plutonium and storing it (in glass or ceramic) in permanent sculptures (reliquaries) under the care of the general populace.

CONCLUSION

In addition to my demonstrated skills and talents as a sculptor, developed over thirty years of professional practice, I have, through my self-directed five year residency at the Hanford Nuclear Reservation, gained a certain familiarity with nuclear science and technology. I believe this experience has left me well prepared to make good use of the facilities at M.I.T. and to contribute to the intellectual and artistic life of the university and the community. Additionally, I see M.I.T. as the leading educational institution in shaping society's understanding and use of advanced technology. An artist-in-residency in the Nuclear Engineering Program at M.I.T. would be a very fruitful project for me and a visionary undertaking for the university.