March 2008 – Grant Opportunities

Dear Sciences Faculty Members:

Here is our March 2008 listing of grant opportunities for faculty members in Science. All of these notices are posted as PDF file on the Office of Research and Economic Development webpage on the Research Funding webpage (http://www.research.msstate.edu/funding/).

Please let my office know if we can help in any way with grant proposals for these or other opportunities.

Sincerely,

Sandra

1. National Science Foundation – Research to Aid Persons with Disabilities
   (DEADLINE – September 15, 2008)

Synopsis – The Research to Aid Persons with Disabilities (RAPD) program supports research that will lead to the development of new technologies, devices, or software for persons with disabilities. Research may be supported that is directed to the characterization, restoration, and/or substitution of human functional ability or cognition, or to the interaction of persons with disabilities and their environment. Areas of particular recent interest are disability-related research in neuroscience/neuroengineering and rehabilitation robotics. Emphasis is placed on significant advancement of fundamental engineering and scientific knowledge and not on incremental improvements. Proposals should advance discovery or innovation beyond the frontiers of current knowledge in disability-related research. Applicants are encouraged to contact a program director prior to submitting a proposal .Undergraduate Engineering Design Projects are also supported, especially those that provide prototype "custom-designed" devices or software for persons with disabilities. The education of undergraduate engineering students is enhanced through Undergraduate Engineering Design Projects' awards supported by the RAPD program. Characteristics of undergraduate engineering design projects to aid persons with disabilities include: * The primary goal of this activity is to provide a meaningful design experience for the engineering student that will directly aid a specific individual with a disability. Undergraduate student engineers or engineering technology students develop prototype "custom-designed" devices and software in this regard. * The PI and the students work with institutions providing care or education for individuals with disabilities. * The proposal must include a short description of ten possible design projects. These projects should be suitable for an undergraduate student, or a small team of students, to complete in about one year. The proposal should include a letter of support from an appropriate administrator of an institution providing care or education to individuals with disabilities. The letter should certify that the institution and the university will work cooperatively on the design projects. * The PI provides an annual report that includes a description of the successfully completed design projects during the previous academic year. Each PI is expected to implement a high percentage of projects each year. It is also expected that the projects will contain appropriate levels of quantitative engineering analysis. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $80,000. Please check the NSF Chemical, Bioengineering, Environmental and Transport Systems Division (CBET) Home Page for the two annual submission windows for unsolicited proposals. Small equipment proposals up to $100,000 will also be considered and may be submitted during these windows. Any proposal received outside the announced dates will be returned without review. For the RAPD program, the duration of Undergraduate Engineering Design Projects is three to five years. The average annual

award size is $25,000.

For More information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14823

2. National Science Foundation – Environmental Technology
(DEADLINE – September 15, 2008)

Synopsis – The Environmental Implications of Emerging Technologies program provides support to develop and test the environmental effects of new technologies. Fundamental and basic research is sought to establish and understand outcomes as a result of the implementation of new technologies such as nanotechnology, biotechnology, and information technology. The program also supports research on the development and refinement of sensors and sensor network technologies that can be used to measure a wide variety of physical, chemical, and biological properties of interest in characterizing, monitoring, and understanding environmental impacts.The program emphasizes engineering principles underlying technology impacts. Innovative production processes, waste reduction, recycling, and industrial ecology technologies are of interest. All of these have implications that would be relevant to this program. Current areas of support include: * Understanding and mitigating how new developments in nanotechnology, biotechnology, and information technology will interact with the environment * Nanotechnology environmental, health, and safety implications and applications * Predictive methodology for the interaction of nanoparticles with the environment and with the human body, including predictive approaches for toxicity * Fate and transport of natural, engineered, and incidental (by-product) nanoparticles * Risk assessment and management of the effect of nanomaterials in the environment * Evaluation of the effect of increased usage of renewable resources on water supply and land use * Sensor and sensor network technologies as they relate to the measurement of these environmental implications. Current areas of support for this program do not include biomedical and nanotoxicology topics involving clinical trials. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $80,000.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14824

3. National Science Foundation – Fluid Dynamics
(DEADLINE – September 15, 2008)

Synopsis – The Fluid Dynamics program supports fundamental research and education on mechanisms and phenomena governing fluid flow. Topics include: hydrodynamic stability; transitional flows and turbulence; Newtonian and non-Newtonian fluid mechanics; sediment transport, waves and coastal engineering; multi-scale, multi-phenomena models and computations; biofluid mechanics, micro and nanoscale flow phenomena, and microfluidics. Proposed research should contribute to the basic understanding of fluid dynamics, thus enabling the better design, predictability, efficiency, and control of systems that involve fluids. Proposals addressing innovative uses of fluids in materials development, manufacturing, biotechnology, nanotechnology, clinical diagnostics and drug delivery, sensors development and integration, energy and the environment, are encouraged.Examples of currently funded research activities include: * Turbulence & Flow Control: Large Eddy Simulation, Direct Numerical Simulation, high Reynolds number experiments, stability and transition to turbulence, instrument development, flow control, 3-D boundary layers, multi-phase turbulent flows * Complex Fluids: rheology, instability, physics of polymer solutions, DNA, Molecular Dynamics simulations * Micro- Nano- Bio- Fluid Mechanics: microfluidics, biomedical microdevices, effects of nanoscale inclusions on rheological properties, flows in biomedical assistive devices, biomimetics, multiscale

modeling of biological flow processes * Waves and Hydraulics & Environmental Fluid Mechanics: wave-sea bed interactions, wave-structure interactions, breaking waves, cavitation-induced flow instabilities, sediment transport, air pollution models * General Fluid Mechanics: droplet and bubble dynamics, gravitational plumes, gas-liquid interfaces, insect flight, compressible flow * Instrumentation & Flow Diagnostics: MEMS shear stress sensors, Magnetic Resonance Imaging for engineering flow measurements, advanced optical velocimetry systems such as echocardiography Particle Image Velocimetry. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $80,000. Please check the NSF Chemical, Bioengineering, Environmental and Transport Systems Division (CBET) Home Page for the two annual submission windows for unsolicited proposals. Small equipment proposals up to $100,000 will also be considered and may be submitted during these windows.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14828

4. National Science Foundation – Interfacial Processes and Thermodynamics (DEADLINE – September 15, 2008)

Synopsis – The Interfacial Processes and Thermodynamics program supports fundamental research in engineering areas related to: * Interfacial phenomena * Mass transport phenomena * Solution phase equilibrium thermodynamics. Currently, emphasis is placed on molecular engineering approaches at interfaces, especially as applied to the processing of soft materials. Molecules at interfaces with functional interfacial properties are of special interest. These interfacial molecules may have biomolecular functions at the micro and nanoscale. Interfacial materials are generally formed through molecular self-directed, -templated, and/or -assembly, and they are driven primarily by thermodynamic intermolecular forces. In some cases, these interfacial processes may also be supplemented by weak chemical reactions. Complex mathematical simulations of molecular systems are often used in molecular design of interfaces, if possible, in conjunction with experimental comparisons. New theories and complex simulation approaches are supported for determining the transport and thermodynamic properties of fluids and fluid mixtures in biological and other fluids with complex molecules in the bulk phase and at interfaces, in membranes, two-phase mixtures, and in ananoenvironment. Many of the physical systems involve polymer and surfactant molecules, as well as special biomolecules. In terms of broader impacts, the program research has had a traditional focus on long-term relevance to engineering aspects of the chemical processing industry; however, newer impact areas are related to advanced materials, biomedical and biotechnology industries, energy and water processing, and the microelectronics industries. Research is supported in the three fundamental areas that could lead to more economical and environmentally benign processing, improved water quality, and novel functional materials for sensors, both in industrial and biomedical settings. Projects are coordinated and jointly supported with other NSF programs, both inside and outside the CBET Division. The program participates strongly in all nanotechnology activities, encourages support of undergraduates, industry/university (GOALI) and international collaboration. Workshop, Individual, and Group Travel grants are supported to further the above research. Examples of research related to interfacial phenomena, mass transport, and phase equilibrium: * Transport in nanoporous systems * Adsorption in complex porous structures * Advanced materials processing at the interface (e.g., biomolecular interfaces) * Self-assembly and crystallization in nanoscale environment * Protein immobilization at interfaces for protein array sensors * Phase behavior of block and graft copolymers in nearcritical and supercritical solvents * Macro ions near confining surfaces: influence on colloidal forces * Templated molecular recognition materials: theory and simulation * Nanostructure control via surfactant mixing and polymerization * Structural order and kinetic properties in aqueous solutions * Directed molecular assembly of novel surfactant based films and composites, polymer microstructures at the interfaces * Basic interfacial processes (e.g. thin films and coatings) * Antifouling and

biocompatible surfaces. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $80,000. Please check the NSF Chemical, Bioengineering, Environmental and Transport Systems Division (CBET) Home Page for the two annual submission windows for unsolicited proposals. Small equipment proposals up to $100,000 will also be considered and may be submitted during these windows.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14829

5. National Science Foundation – Environmental Engineering
(DEADLINE – September 15, 2008)

Synopsis – In broadest terms, the field of Environmental Engineering is concerned with understanding the impacts of human activities on the natural environment and developing the scientific basis for solving, mitigating, or managing environmental problems caused by human activities. The field emerged as a separate engineering discipline during the middle third of the 20th century, in response to widespread public concern about water and air pollution and increasingly extensive environmental degradation. However, its roots extend back to early efforts in public health engineering in the late 19th century and to ancient times with regard to urban drinking water systems. The Environmental Engineering program supports fundamental research and educational activities across the broad field it serves, with the goal of applying engineering principles to understand and reduce adverse effects of solid, liquid, and gaseous discharges into land, inland and coastal waters, and air that result from human activity and that impair the ecological and economic value of those resources. It fosters cutting-edge research based on fundamental science and four types of engineering tools - - measurement, analysis, synthesis, and design. Proposals emphasizing enhancement of American Competitiveness are encouraged. Major areas of interest and activity in the program include: * Developing innovative biological, chemical, and physical treatment processes to remove and degrade pollutants from water and air * Measuring, modeling, and predicting the movement and fate of pollutants in the environment * Developing and evaluating techniques to clean up polluted sites, such as landfills and contaminated aquifers, restore the quality of polluted water, air, and land resources and rehabilitate degraded ecosystems. Along with its sibling environmental programs (Environmental Technology, Environmental Sustainability, and Energy for Sustainability), the program fosters environmental sustainability through the development of techniques to minimize or avoid generating pollution. Research may be directed toward improving the cost-effectiveness of pollution avoidance, as well as developing new principles for pollution avoidance technologies. Research for new and improved sensors of environmental conditions and innovative waste reduction and recycling processes also are important components of this program. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $90,000.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14830

6. National Science Foundation – Environmental Sustainability
(DEADLINE – September 15, 2008)

Synopsis – The Environmental Sustainability program supports engineering research with the goal of promoting sustainable engineered systems that support human well-being and that are also compatible with sustaining natural (environmental) systems - - which provide ecological services vital for human survival. The long-term viability of natural capital is critical for many areas of human endeavor. Research in Environmental Sustainability considers long time horizons and incorporates contributions from the social sciences and ethics. This program supports engineering research that seeks to balance

society’s need to provide ecological protection and maintain stable economic conditions. There are four general research areas which are supported: Industrial Ecology Green Engineering Ecological Engineering Earth Systems Engineering. Topics of interest in Industrial Ecology include advancements in modeling such as life cycle assessment, materials flow analysis, input/output economic models, and novel metrics for measuring sustainable systems. Understanding materials flow and taking advantage of such understanding to substitute less toxic, longer lived materials are important areas for consideration. The effects of substituted materials on waste streams can be explored. Innovations in industrial ecology are encouraged. Engineering tools for estimating costs and ramifications of sustainable development must be developed, tested, and evaluated. In Green Engineering, research is encouraged to advance the sustainability of chemical processes, manufacturing processes, green building, and infrastructure. Many programs in the Engineering Directorate support research in environmentally benign manufacturing or chemical processes. The Environmental Sustainability program supports research that would affect more than one chemical or manufacturing process or that takes a systems or holistic approach to green engineering for infrastructure or green building. Of particular interest is the next generation of water and wastewater treatment that will dramatically decrease material and energy use, consider new paradigms for delivery of services, and promote longer life for engineered systems. Improvements in distribution and collection systems that will advance smart growth strategies and ameliorate effects of growth are research areas that are supported by Environmental Sustainability. Innovations in prevention and management of storm water, wastewater technology, indoor air quality, recycling and reuse of drinking water, and other green engineering techniques to support sustainable construction projects may also be fruitful areas for research. Ecological Engineering topics should focus on the engineering aspects of restoring ecological function to natural systems. Engineering research in enhancement of natural capital to foster sustainable development is encouraged. Many communities are involved in stream restoration, revitalization of urban rivers, and rehabilitation of wetlands that require engineering input. What is the fundamental engineering knowledge that is necessary for ecological engineering to function sustainability?Earth Systems Engineering considers aspects of large scale engineering research that involve mitigation of greenhouse gas emissions, adaptation to climate change, and other global scale concerns. All proposed research should be driven by engineering principles, and be presented explicitly in an environmental sustainability context. Proposals should include involvement in engineering research of at least one graduate student, as well as undergraduates. Proposals emphasizing enhancement of American Competitiveness are encouraged. Incorporation of aspects of social, behavioral, and economic sciences is welcomed. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $100,000.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14831

7. National Science Foundation – Energy for Sustainability
(DEADLINE – September 15, 2008)

Synopsis – The Energy for Sustainability program supports fundamental research and education in energy production, conversion, and storage and is focused on energy sources that are environmentally friendly and renewable. Most world energy needs are currently met through the combustion of fossil fuels. With projected increases in global energy needs, more sustainable methods for energy production will need to be developed, and production of greenhouse gases will need to be reduced.Sources of sustainable energy include: * Sunlight * Wind * Biomass. Hydrogen and alcohols are potential energy carriers that can be derived from renewable sources. Research that generates enabling science and technologies for more efficient hydrogen generation and storage is supported by the program. Potential sources of hydrogen include conversion from biomass and from electrolysis, photolysis or thermolysis of water. Biomass is available from agricultural crops and residues, forest products, aquatic plants, and

municipal wastes. In addition to hydrogen, biomass can be a source of liquid, solid, and gaseous fuels including biofuels such as ethanol. Fuel cells have the potential to convert fuels such as hydrogen and alcohols to electricity at high efficiencies and should play an increasing role in energy conversion. Critical components of low temperature fuel cells requiring additional research include catalysts and electrolytes. Development of these components also requires fundamental research on the reaction and transport mechanisms at the catalyst and membrane electrolyte interface. Advances in these areas are needed to address key challenges in efficiency, durability, power density, and environmental impacts. The engineering aspects of fuel-cell design and operation also require further study in areas such as water and thermal management. Wind power is a growing source of electrical energy. Increased efficiency requires a fundamental knowledge of the interaction of wind with the blade structure. Understanding the fluid flow, and optimizing blade design are important aspects in developing more efficient wind generators. Photovoltaic devices have the potential to supply a significant fraction of electrical energy to the power grid. Although silicon-based materials have been most widely used, other semiconducting materials and titanium dioxide also have potential. New materials and novel fabrication techniques for solar energy conversion are supported by the program. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $100,000.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14832

8. National Science Foundation – Biophotonics, Advanced Imaging, and Sensing for Human Health (DEADLINE – September 15, 2008)

Synopsis – Innovative basic research in photonics, imaging, and sensing that is very fundamental in science and engineering is needed to lay the foundation for new technologies beyond those that are mature and ready for application in medical diagnostics and therapies .Developing molecularly specific sensing (molecular photonics), imaging, and monitoring systems with high sensitivity and resolution would be an enormous accomplishment with powerful applications to both biology and medicine. Low cost diagnostics will require novel integration of photonics, molecular biology, and material science. Complex biosensors capable of detecting and discriminating among large classes of biomolecules could be important not only to biology and medicine, but also to environmental sensing and homeland security. The BISH program supports innovative research of biophotonic, imaging, and sensing technologies for applications in human health. Examples of topics are: * Low Coherence Sensing at the Nanoscale - - Low coherence enhanced backscattering (LEBS), n-dimensional elastic light scattering, and angle- resolved low coherence interferometry for early cancer detection (dysplasia) * Macromolecule Markers - - Innovative methods for labeling of macromolecules, new compositions of matter/methods of fabrication of multi-color probes such as might be used for in-vitro marking and detection of specific pathological cells and or pathogens * Multi-probe Molecular Manipulations - - New optical approaches that permit specific molecular action on cells which conjointly bind two or more different probes with specificity for different macromolecular markers * Neuro-photonics - - Development of new biocompatible detection technologies that could serve as massively parallel interfaces for communicating with networks of cells such as brain tissue slices. Studies of photon activation of neurons at the interface of nanomaterials attached to cells * Biomimetic and Miniaturized Devices - - Innovative miniaturized optical tools or devices for the interrogation and manipulation or creation of specific reactions in complex cell or organ culture * Photon-cell Interactions - - Fundamental studies of novel photonic properties of nanoparticles and optical reporters and their interaction with cells and their internal organellesExamples of fundamental engineering research on technologies for human health that are of interest include: * Nanoparticle fluorescent quantum-dots * Novel waveguiding structures * Plasmon surface resonance and plasmonic nanostructures * Nanofluidics and nanochannel interconnects * Bio-inspired device concepts (lens microarrays) * Novel

multi-function/multi-spectral focal plane arrays * Radiation sources and detectors (from IR to extreme UV) * Miniature power sources (nano-bio-batteries) * Photonic bandgap devices * Novel refractive index materials * N-dimensional photonic crystal microcavities * Quantum cascade photonics. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $100,000 for individual investigators and $200,000 for multiple investigators.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14833

9. National Science Foundation – Biomedical Engineering
(DEADLINE – September 15, 2008)

Synopsis – The Biomedical Engineering (BME) program primarily supports fundamental, transformative, and discovery research applied to biological systems. The research projects should: * Develop novel ideas integrating engineering and life science principles in solving biomedical problems that serve humanity * Focus on high impact transforming methods and technologies and include models and tools for understanding and control of biological systems; fundamental improvements in deriving information from cells, tissues, organs, and organ systems; new approaches to the design of structures and materials for eventual medical use; new methods of understanding and controlling living systems; information technology relevant to biotechnology including bioinformatics; and new novel methods of reducing health care costs through new technologies * Emphasize the advancement of fundamental engineering knowledge, possibly leading to the development of new methods and technologies * Emphasize novel application of existing technologies to advance fundamental knowledge of both engineering and life sciences * Encourage initial evaluation of discovery-level research in a clinical setting but not supporting clinical trials * Highlight multi-disciplinary nature, integrating engineering and the life sciences * Balance theory, mathematical modeling, and experiment. The long-term impact of the projects can be related to disease diagnosis and/or treatment, improved health care delivery, or product development. Projects submitted to the BME Program must advance both engineering and biomedical sciences. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $80,000 (including indirect cost).

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14834

10. National Science Foundation – Thermal Transport Processes
(DEADLINE – September 15, 2008)

Synopsis – The Thermal Transport Processes program supports research aimed at gaining a basic understanding of the microscopic and macroscopic levels of thermal phenomena underlying energy conversion, the synthesis and processing of materials, cooling and heating of buildings and equipment, the interaction of industrial processes with the environment, the propulsion of air and land-based vehicles, and thermal phenomena in biological and environmental systems. The program supports fundamental research and education in transport processes that occur by thermal gradients and thermal history, and their manipulation to achieve engineering goals. This engineering science forms an important part of the intellectual infrastructure of a number of modern technologies. Basic research in flow and convective processes with and without phase change, heat and mass transfer at nano- and molecular scales, radiative transport, and the fundamental characterization of material properties important to these processes are especially relevant to this program. Priority is given to innovative, insightful investigations of fundamental problems with broad applications and to novel use of heat transfer principles to meet the engineering needs of the nation. Some examples of critical new fundamental areas include: 1. Thermal transport in energy conversion processes, including

environmental interactions, is of interest to reduce the nation's dependence on petroleum and to enhance the nation's sustainability 2. Heat and mass transfer at small scales covering phenomena with length and/or time scales from the molecular to the continuum, is a subject of continuing importance to energy conversion, biotechnology, microelectronics, and biochemical detection 3. The fundamental understanding of the interaction of energetic beams, such as lasers, with solid surfaces is vital to the evolution of advanced micro- and nano-manufacturing techniques. The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $90,000.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14836

11. National Science Foundation – Particulate and Multiphase Processes
(DEADLINE – September 15, 2008)

Synopsis – The Particulate and Multiphase Processes program supports fundamental and applied research on mechanisms and phenomena governing particulate and multiphase processes, including granular and granular-fluid flows, particle/bubble/droplet interactions, aerosol science and technology, suspensions, micro- and nano-structured fluids, self- and directed-assembly of nanostructures, and related instrumentation and diagnostics. Innovative research is sought that contributes to improving the basic understanding, design, predictability, efficiency, and control of particulate and multiphase processes with particular emphasis on: new frontiers in nanotechnology, novel manufacturing techniques, nano-metrology, multiphase transport in biological systems, environmental sustainability, critical infrastructure systems, and complex engineering systems. Collaborative and interdisciplinary proposals are encouraged; proposals that include a combination of experimental and theoretical approaches are more likely to receive funding than solely theoretically or experimentally oriented work. Highly reviewed projects generally demonstrate a strong scientific basis together with clear practical applications. Unsolicited proposals in the above and related areas are encouraged. Investigators are also encouraged to find industrial partnerships and make GOALI submissions. Current research focus areas include: * Multiphase flow phenomena (particle/bubble/droplet dynamics), structured fluids (colloids, ferro-fluids), and self and directed assembly of particles into functional devices * Granular and granular-fluid flows (flow and mixing of powders, effects of particle cohesion, fluidization, particle transport systems). Note the Report of the IFPRI Powder Flow Working Group gives a helpful roadmap for future directions in this area * Particle science and technology (aerosols, production of particles with engineered properties, assembly of particles into functional materials and devices, environmental issues, nanotoxicology) * Multi-scale models of multiphase systems (emphasis on novel approaches connecting micro- and nano- scale phenomena and properties with process-level variables) * Multiphase transport in biological systems (emphasis on applications of functionalized nanostructures in clinical diagnostics and therapeutics)The duration of unsolicited awards is generally one to three years. The average annual award size for the program is $80,000.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=14839

12. National Science Foundation – Physics of Living Systems
(DEADLINE – July 31, 2008)

Synopsis – The program Physics of Living Systems (PoLS) at the National Science Foundation evolved from the successful Biological Physics program, which supported projects that applied analytical and experimental tools of physics to the study of biological problems at the molecular level. PoLS is replacing the Biological Physics program and will target theoretical and experimental research exploring the most fundamental biological processes that living systems utilize to perform their

functions in dynamic and diverse environments. PoLS will stimulate those investigations that have the potential to transform the study of living systems. PoLS will encourage research that will emphasize the physical principles of organization and function of living systems, including the exploration of artificial life forms. While the problems under study must be important to advancing our understanding of the living world in a quantitative way, particular emphasis will be placed on those projects in which lessons learned from the biological application also expand the intellectual range of physics. Awards will cover a broad spectrum of physics approaches in biology, ranging from the physical principles and mechanisms at the single cell level such as cellular organization (e.g. cytoskeleton), energy metabolism, gene regulation and intracellular and intercellular communication, to collective behavior and evolution of complexity in life forms and living populations of organisms. This systems approach in physics has been very successful in understanding inanimate systems, and has the potential to bring deep understanding of the world of animated, replicating systems, through falsifiable phenomenological theories. In vitro systems, if necessary for understanding of the physical principles in a living organism, will be supported as well. The program funds individual investigators, although collaborative proposals between physicists and biological researchers are welcome.

For More Information: http://www.grants.gov/search/search.do?&mode=VIEW&flag2006=true&oppId=17264

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