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**National Foundation of Science and Advanced Technologies (NFSAT)  
U.S. Civilian Research and Development Foundation (CRDF)  
2005-2006 Armenian Travel Fellowship Program**

**I. Introduction**

On a competitive basis, the National Foundation of Science and Advanced Technologies (NFSAT) and the U.S. Civilian Research and Development Foundation (CRDF) will sponsor travel to the United States and living expenses for scientific visits of **two to three months** in duration for Armenian young investigators. Grants will include travel costs and living expenses up to **US\$6,000**.

The goal of this program is to enable young Armenian investigators, 35 years of age or younger, to identify and develop new contacts, which will promote further collaboration between Armenian and U.S. researchers and strengthen the next generation of Armenian scientists and engineers. This initiative will do this by providing young Armenian and engineers an opportunity to explore their research ideas and work with a U.S. host who is able to provide access to the facilities of a modern and well-equipped U.S. laboratory. In accordance to NFSAT's and CRDF's principles of operation, all support will be based on exceptional peer-reviewed projects and will be determined by the scientific merit of applications.

The National Foundation of Science and Advanced Technologies (NFSAT) is an independent nonprofit and self-governed foundation that was established in 1997, according to the legislation of the Republic of Armenia. NFSAT promotes scientific research and technological development in Armenia through competitive grants, training, and technical resources. Further information on the NFSAT may be found on-line at <http://www.nfsat.am>.

The CRDF is a nonprofit organization authorized by the U.S. Congress and established in 1995 by the National Science Foundation. This unique public-private partnership promotes scientific and technical collaboration between the United States and other countries, primarily the countries of the former Soviet Union (FSU), through grants, technical resources, and training. Further information on the CRDF may be found on-line at <http://www.crdf.org>.

This program is made possible through funds provided to the CRDF from the U.S. Government for the promotion of Armenian science and technology development.

**Proposals must be submitted to NFSAT and CRDF by 18:00 local time on July 1, 2005. The competition results are expected to be announced by November 1, 2005.**

## **II. Program Guidelines**

NFSAT and CRDF plan to support up to three Travel Fellowship Grants of up to US\$6,000 each. Each application must include a letter of invitation from a U.S. university, nonprofit institution, or industrial research facility to carry out the project in the fields of the basic and applied sciences (Appendix 1).

The travel may be planned for anytime during the period of **January 15, 2006 to April 30, 2006**. All travel under these grants will be subject to the U.S. Government Fly America Act.

NFSAT and CRDF will give special consideration to proposals that contain the following:

- New research topics for Armenia, including new research methods for solving scientific tasks and problems;
- Research topics aimed at solving actual scientific-technological problems in Armenia;
- Research topics with a high likelihood of resulting in a publication in a prominent international scientific journal;
- Applicants currently attending Armenian state research organizations who are graduate students or undergraduate students who have completed at least three years of study;
- Applicants who are first-time visitors to the United States.
- Applicants from outside the Yerevan area (which also includes Ashtarak and Byurakan).
- Applicants who have not received a grant under a previous CRDF or NFSAT program.

Successful applicants under the Travel Fellowship Program will be eligible to apply for follow-on grants of up to US\$3,000 each after returning to Armenia. Based on the progress from the travel grant, the follow-on awards will provide each grantee with up to 12 months of additional support. These grants are designed to help the young scientists maintain scientific communications with their newly established U.S. collaborators and will enable the grantees and their U.S. collaborator to develop joint publications, conference presentations and proposals for cooperative research programs carried out by funding organizations such as CRDF, NFSAT and ISTC.

Further information about these follow-on grants will be distributed to successful applicants.

## **III. Eligibility**

Proposals must meet each of the following eligibility requirements:

- 1) The applicant must be either an undergraduate student who has completed at least three years of study, a graduate student or a recent Kandidat graduate (degree completed within the last 6 years).
- 2) Applicants must be 35 years of age or younger at the time of their application.
- 3) The applicant **must be an Armenian citizen** currently residing and working in Armenia.
- 4) The applicant must have a proficient working knowledge of English, both written and spoken.
- 5) Armenian scientists who are Principal Investigators on any active NFSAT or CRDF grants (including CGP, BGP, RESC, NSTM, FSTM, Special Cooperative Grant Program Competition, etc.) are **NOT** eligible for this program. However, all other Armenian team members on these grants are eligible, provided that they meet the other eligibility requirements stated in this announcement.
- 6) The U.S. host scientist must be a U.S. citizen or permanent resident of the United States and must reside in the United States during the course of the project.

- 7) **NOTE:** Depending on the individual circumstances of the visit, successful Armenian applicants must obtain either a U.S. B1/B2 or a U.S. “J” visa. If the U.S. consular officials at the U.S. Embassy in Yerevan determine that the Armenian applicant needs a “J” visa, the U.S. host’s institution must be able to issue the documents necessary for the Armenian applicant to obtain a U.S “J” visa. Please refer to the following link on the U.S. Department of State website for more information about U.S. visa requirements:  
[http://travel.state.gov/visa/tempvisitors\\_types\\_scholars.html](http://travel.state.gov/visa/tempvisitors_types_scholars.html)
- 8) The applicant and U.S. host must work full-time in a civilian research environment.
- 9) The project must be oriented toward non-defense and non-military objectives and must be carried out in a civilian research environment.
- 10) CRDF and NFSAT comply with all U.S. laws and regulations pertaining to export control and the participation of foreign nationals or institutions in its activities. It is NFSAT’s policy not to conduct any transactions with U.S. restricted entities without appropriate authorization from CRDF.
- 11) NFSAT and CRDF reserve the right to restrict the participation of any individual or institution in their programs.
- 12) NFSAT complies with all Armenian laws and regulations.
- 13) CRDF and NFSAT comply with all U.S. laws and regulations pertaining to the treatment of human subjects in scientific research and development. Applicants submitting proposals involving human research subjects should refer to section IV.D. of this program announcement for more information.

#### **IV. Application Guidelines**

Applications must not exceed 20 pages, including all forms and other documentation. Program applicants must submit the following application materials:

1. **Cover Sheet (Form A).** All signatures on this page need to be original and sealed.
2. **Budget (Form B).** The budget must detail all estimated expenses, including round-trip airfare between Armenia and the designated research location in the United States (economy class, lowest-cost applicable), visa fees, living expenses (including meals and lodging), emergency health insurance, and ground transportation.
  - 2.1 Air travel must comply with the provisions of the Fly America Act. Specifically, transoceanic air tickets must be purchased from a U.S. carrier. For more information on this regulation, please contact the NFSAT office or refer to the following website:  
[http://www.crdf.org/AwardsAdministration/fly\\_america\\_act.pdf](http://www.crdf.org/AwardsAdministration/fly_america_act.pdf).
  - 2.2 Living allowances may not exceed US\$2,000 per month or the prorated equivalent.
  - 2.3 For information regarding U.S. Government per-diem rates for cities throughout the United States, applicants should refer to the following websites: <http://www.govexec.com/travel> or <http://policyworks.gov/org/main/mt/homepage/mtt/perdiem/perd05d.html>.
  - 2.4 **The maximum award amount is US\$6,000 for each successful candidate.**
3. **Biographical sketch of the applicant,** including the following:
  - 3.1 **Curriculum Vitae** for the applicant that includes the full name, date and place of birth, contact address, information on the applicant’s education, prior and current employment, honors received, research interests, and long-term educational and professional goals (maximum 2 pages).
  - 3.2 **Publications.** A statement indicating the total number of publications and a list of five relevant publications.
  - 3.3 **Information on English language ability,** including the number of years of English language study.

3.4 **Information on prior professional visits abroad**, including information on doctoral or postdoctoral training abroad, and attendance of international conferences including papers presented at international meetings.

4. **Project narrative**, including the following:

- 4.1 **Abstract.** In one concise paragraph, summarize all relevant aspects of the project, with special attention to its objectives, methods, and potential results.
- 4.2 **Description of scientific research** to be undertaken during the grant period, its importance, its relevance to the applicant's present research, its expected results and its possible contribution to solving actual scientific-technological problems faced by Armenia (maximum 5 pages).
- 4.2 **The time period** proposed for the visit and a detailed **working plan**, including a timeline of specific tasks to be performed (maximum 1 page).
- 4.3 **A response to each of the evaluation criteria listed below (Section VI.A)**

5. **Invitation letter from a U.S. scientific host**

This letter should indicate familiarity with the proposed research project, an indication that the host is able to provide the research facilities necessary for the Armenian scientist to successfully carry out the project, a willingness to assist the applicant with logistical (though not necessarily financial) support for his or her visit, and an affirmation that the host will support efforts by the applicant to arrange publication of the results of the research. The U.S. host institution may be a university, U.S. government laboratory, or for-profit company.

6. **Statement from the U.S. scientific host**

This statement should briefly explain how the U.S. host will help the Armenian scientist coordinate the research project and organize the visit. Please provide details about the facilities and equipment that will be available to the Armenian scientist during the visit to the U.S. institute. In addition, please describe any future plans for collaboration with the Armenian scientist after the visit.

7. **Two signed letters of reference (Form C)**

One letter must come from the applicant's current supervisor. The other letter should come from a person with whom the applicant has worked in his/her major field, such as a thesis advisor, professor, or employer. Reference letters should be submitted directly by the referee to NFSAT and should include comments on the applicant's:

- Mastery of fundamental knowledge in the applicant's field;
- Potential within his/her field;
- Design of the proposed research project;
- Laboratory skills and technique (if applicable);
- Adaptability: creativity, originality, self-reliance, and language abilities.

8. **Optional**

**Proof of any additional financial or in-kind support** from the U.S. host or other sources (not individuals) besides use of laboratory equipment, supplies, and facilities.

#### **V. Timetable and Proposal Submission**

- **The deadline for proposals to be submitted to NFSAT and CRDF is 18:00 local time on July 1, 2005.**
- The competition results are expected to be announced by **November 1, 2005.**
- The travel must occur between **January 15, 2006 and April 30, 2006.**

**All applicants must submit their proposals to NFSAT and CRDF in the following manner:****1) To NFSAT**

- One original hardcopy and one electronic copy in English;
- One original hardcopy and one electronic copy in Armenian or Russian.
- The invitation letter from the U.S. scientific host (in English) must be scanned and attached to the electronic copies of the proposal (English and Armenian or Russian).
- The applicant must submit the original hardcopy of the invitation letter from the U.S. scientific host along with the hard copies of the proposal.

**Applications must be sent to:**

National Foundation of Science and Advanced Technologies (NFSAT)  
26, Azatutyan Ave., Yerevan, 375014,  
Republic of Armenia  
Tel: 28-81-92  
Email: [tfp@nfsat.am](mailto:tfp@nfsat.am)

**2) To CRDF**

- One electronic copy in English must sent to the following email address: [armenia@crdf.org](mailto:armenia@crdf.org)
- The invitation letter from the U.S. Scientific Host must be scanned and attached to the electronic copy of the proposal.

**The electronic copies of the proposal must be in Microsoft Word or PDF format. All electronic copies of proposals must be submitted as ONE electronic file. Proposals in .zip format that contain multiple documents will not be accepted.**

All applications should be typed with 1.5-spacing in Armenian or Russian, point 12-font size, with margins of 2.5 cm (one inch) at the sides and on the top and bottom, with all pages, including forms, numbered consecutively in the upper right corner. The requirements for the English version are the same.

**NFSAT and CRDF will not accept fax submissions.**

For questions about the proposal submission process, or for further information about this program, please contact the NFSAT or CRDF offices:

NFSAT contact person:

Ms. Anna Baghramyan, Senior Program Manager  
Tel: 28-81-92  
[tfp@nfsat.am](mailto:tfp@nfsat.am)

CRDF contact person:

Mrs. Amy Prevatt-Bulat, Program Manager  
Tel: 703-526-6762  
[armenia@crdf.org](mailto:armenia@crdf.org)

**VI. Review of Proposals**

Each proposal will be screened for eligibility and completeness upon receipt by NFSAT and CRDF. NFSAT and CRDF will evaluate all eligible proposals according to the criteria listed below. A select number of applicants will be interviewed in Yerevan to assess the applicants' English language proficiency. NFSAT and CRDF reserve the right to contact the applicants for additional information as needed. The CRDF will contact also the U.S. hosts for any additional information.

NFSAT and CRDF will run a parallel external reviewing process and will jointly select the proposals chosen for awards.

#### **A. Evaluation criteria:**

- 1) **Performance Excellence:** *The capability of the applicant, the technical soundness of the proposed approach, the adequacy of the technical resources and capabilities available to the project, and soundness of the plan to manage and coordinate the project within three months.*
- 2) **Intrinsic Merit:** *The likelihood that the project may lead to new knowledge and will promote further collaboration between the Armenian applicant and U.S. Scientist.*
- 3) **Utility:** *The likelihood that the results of the project will make a contribution to solving actual scientific-technological problems faced by Armenia.*
- 4) **Professional Benefit:** *Relevance of proposed work to applicant's career goals and areas of specialization and interest. Potential for proposed work to facilitate the applicant's career goals and development.*
- 5) **Participation of U.S. Scientific Host:** *Level of U.S. host assistance to the visiting Armenian scientist. Equipment and facilities that will be accessible to the Armenian scientist. Long-term plans for collaboration beyond the research visit.*
- 6) **English Language Proficiency:** *How easily the applicant understands and speaks English and how long the applicant has studied English.*

#### **B. Intellectual Property**

The NFSAT and CRDF make no claim to intellectual property rights under any award. The NFSAT and CRDF's primary interest is that intellectual property rights be equitably allocated. Both the U.S. and Armenian parties should be familiar with and abide by the laws regarding intellectual property in their respective countries and by the regulations regarding grants for research projects.

#### **C. Confidentiality**

The NFSAT and CRDF will treat all proposals as confidential material and will require all panelists and reviewers to respect the confidentiality of proposals. However, proposal authors are advised that successful proposals will be treated as being in the public domain. Therefore, at the author's discretion, if there is specific information in the proposal that is business-confidential and not intended for public dissemination, it should be clearly labeled as such at the top and bottom of the applicable page of the proposal. Such passages will be withheld from public distribution if the proposal is successful. Proposals that do not result in awards are not subject to public dissemination by the NFSAT and CRDF.

#### **D. Special Instructions for Proposals Involving Human Subjects Research:**

The NFSAT and CRDF comply with all U.S. laws and regulations pertaining to the treatment of human subjects in scientific research and development. The NFSAT and CRDF policy on funding proposals involving human subjects research requires both the Program Director and their respective institution(s) to certify that:

They have obtained Institutional Review Board (IRB) or Institutional Ethics Committee (IEC) approval of the research (or a determination that written approval is not required, *e.g.*, exempt research) from an IRB/IEC registered with the U.S. Department of Health and Human Services' Office of Human Research Protections (OHRP);

They have obtained the required approval(s) (or a determination that written approval is not required) from the applicable governmental office(s) for the research, including but not limited to the filing of the required applications related to investigational new drugs or investigational devices;

They have a Federalwide Assurance (FWA) on file with OHRP, and it will comply with the FWA throughout the term of the Project Agreement. The FWA represents a public commitment to comply with the human subjects protections standards of the Belmont Report and the Common Rule;

They will conduct the research in accordance with the National Science Foundation (NSF) regulation entitled, “*Protection of Human Subjects*” [45 CFR § 690 *et seq.*];

If the proposal involves human research subjects, the Armenian applicant must provide the following additional documentation:

- 1) **Each proposal involving human subjects research must include a completed IRB Protocol Summary Form, which is available for download from the CRDF Website at: [http://www.crdf.org/AwardsAdministration/human\\_subjects.html](http://www.crdf.org/AwardsAdministration/human_subjects.html)**
- 2) Copies of Institutional Review Board (IRB) or Institutional Ethics Committee (IEC) approval of the project or a formal written determination that said approval is not required, e.g. exempt research. The IRB/IEC must be registered with the U.S. Department of Health and Human Services’ Office of Human Research Protections.
- 3) Copies of required approval(s) (or determination that said approval is not required) from the applicable governmental bodies for the research, including but not limited to the filing of required applications related to investigational new drugs or investigational devices.
- 4) Confirmation that the institution(s) has a Federalwide Assurance (FWA) on file with the U.S. Office for Human Research Protections (<http://www.hhs.gov/ohrp/>) and certification that it will comply with the FWA throughout the term of any resulting award. If an FWA has not been obtained, please so note in the proposal. Please be advised that, in the event the proposal is selected for an award, an FWA must be applied for and received by the Program Director’s institution(s) prior to the issuance of any project agreement.

It has obtained Institutional Review Board (IRB) or Institutional Ethics Committee (IEC) approval of the research (or a determination that written approval is not required, *e.g.*, exempt research) from an IRB/IEC registered with the U.S. Department of Health and Human Services’ Office of Human Research Protections (OHRP);

It has obtained the required approval(s) (or a determination that written approval is not required) from the applicable governmental office(s) for the research, including but not limited to the filing of the required applications related to investigational new drugs or investigational devices;

It has a Federalwide Assurance (FWA) on file with OHRP, and it will comply with the FWA throughout the term of the Project Agreement. The FWA represents a public commitment to comply with the human subjects protections standards of the Belmont Report and the Common Rule;

It will conduct the research in accordance with the National Science Foundation (NSF) regulation entitled, “*Protection of Human Subjects*” [45 CFR § 690 *et seq.*];

These materials, indicating an approval or an exemption of the project to use human subjects must be submitted to both NFSAT and CRDF. Applicants are required to submit these materials as separate documents in addition to the proposal file. Failure to submit this additional information may result in substantial processing delays or in the proposal being declared ineligible.

Prior to the issuance of any award agreement by the NFSAT, the Armenian participants, U.S. Scientific Host and their institutions must provide certification that all project participants involved in the project have undertaken appropriate training in human subjects protections consistent with the requirements of the regulations cited above.

For more information on CRDF and NFSAT policies on human subjects, please refer to the following website: [http://www.crdf.org/AwardsAdministration/human\\_subjects.html](http://www.crdf.org/AwardsAdministration/human_subjects.html)

#### **E. Anti-Kickback Policy and Other Special Terms**

Please refer to the following weblinks for more information:

[http://www.crdf.org/AwardsAdministration/general\\_award\\_terms\\_conditions.html](http://www.crdf.org/AwardsAdministration/general_award_terms_conditions.html) and

[http://www.crdf.org/AwardsAdministration/anti\\_kickback\\_policy.htm](http://www.crdf.org/AwardsAdministration/anti_kickback_policy.htm)

<b>Checklist of Application Contents</b>
1. <input type="checkbox"/> <b>Cover Sheet (Form A)</b>
2. <input type="checkbox"/> <b>Budget (Form B)</b>
3. <input type="checkbox"/> <b>Biographical Sketch of Applicant</b>
4. <input type="checkbox"/> <b>Project Narrative</b>
5. <input type="checkbox"/> <b>Invitation Letter from U.S. Scientific Host</b>
6. <input type="checkbox"/> <b>Statement from U.S. Scientific Host</b>
7. <input type="checkbox"/> <b>Two Signed Letters of Reference (Form C)</b>
8. <input type="checkbox"/> <b>Proof of Any Additional Support (if applicable)</b>
9. <input type="checkbox"/> <b>Documentation on Human Subjects Research (if applicable)</b>

**ARMENIAN TRAVEL FELLOWSHIP PROGRAM  
FORM A: GENERAL PROJECT INFORMATION**

Total Amount Requested from NFSAT		Dates of Proposed Visit	
Topic of investigation to be carried out by applicant:			
Full Name (Last, First, Patronymic)			
Position/Title			
Institution Name and Complete Mailing Address			
Date of Birth (MM/DD/YY)		Passport Number	
Sex (Male or Female)		Highest Degree Earned	
Field of Degree		Year Awarded	
Telephone #		Fax #	
E-Mail			
Institution Director Name and Address			
Institution Director Telephone #		Institution Director Email	
Have you received a grant under a previous CRDF or NFSAT program?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
<i>If "Yes," please list the program and grant number.</i>			
Are you currently an undergraduate or graduate student at an Armenian institution of higher education?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
<i>If "Yes," please explain what type of degree program you are in and specify when you expect to complete your current studies in the space below</i>			
Have you visited the U.S. before?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
<i>If "Yes," provide a brief description of the reason for your previous visit:</i>			
Do you have current or prior experience with weapons related research?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
<i>If "Yes," please select the code from Appendix 2 describing your experience in the box to the right and provide a brief description below of the type of work involved.</i>			

**INFORMATION ON THE U.S. HOST**

Full Name (Last, First, Middle)			
Position/Title			
Institution Name and Complete Mailing Address			
Sex (Male or Female)		(Must Check One) <input type="checkbox"/> Permanent Resident <input type="checkbox"/> U.S. Citizen	
Highest Degree Earned		Year Awarded	
Field of Degree			
Telephone #		Fax #	
E-Mail		Web Page Address	
Have you received a grant under a previous CRDF program?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	
<i>If "Yes," please indicate program and grant number.</i>			
U.S. Institutional Rep. Name <sup>1</sup>		U.S. Institutional Rep. Email	
<i>Does the U.S. host's Institution have the authority to issue the documents required for the Armenian applicant to obtain a U.S. "J" visa if necessary?</i>			
	YES <input type="checkbox"/>	NO <input type="checkbox"/>	

**Signatures (original) \***

A. **Applicant:** \_\_\_\_\_; Date: \_\_\_\_\_

B. **Applicant's Institute Director:** \_\_\_\_\_; Date: \_\_\_\_\_

\* By signing this application, I certify that I meet all the eligibility requirements in this announcement, and that all information provided is accurate to the best of my knowledge. I recognize that the U.S. visit is two to three months in duration and that I am expected to return to Armenia after the research visit.

<sup>1</sup> Must be an individual, other than the U.S. host scientist, who can authorize support for visiting Armenian scientist.

**ARMENIAN TRAVEL FELLOWSHIP PROGRAM APPLICATION  
FORM B (Budget)**

<b>Category</b>	<b>Amount Requested from NFSAT</b>	<b>Support from other sources</b>
International Transportation <sup>1</sup>		
Air passenger exit duty		
Visa Fees		
Per Diem (Including Lodging) <sup>2</sup>		
Health Insurance <sup>3</sup>		
Ground Transportation <sup>4</sup>		
<b>Total Amount</b> <sup>5</sup>		

<sup>1</sup> Air ticket price should reflect the lowest-cost applicable airfare offered by a U.S. carrier for an economy class, round-trip ticket between Armenia and the designated research location in the U.S. All air tickets must be purchased by NFSAT.

<sup>2</sup> Per diem may not exceed US\$2,000 per month or the prorated equivalent.

<sup>3</sup> Emergency health insurance is mandatory for all travelers.

<sup>4</sup> Reimbursement up to US\$50 upon presentation of receipts.

<sup>5</sup> Not to exceed US\$6,000.

RECEIVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
NFSAT staff signature

**ARMENIAN TRAVEL FELLOWSHIP PROGRAM APPLICATION**  
**FORM C**  
**Letter of Reference**

Name of applicant			
Full Name of Reference		Institutional Affiliation	
Position/Title		Relationship to Applicant	
Email		Tel. #	Fax #
Signature			Date

In your letter (maximum 2 pages), please comment on the applicant's

- Mastery of fundamental knowledge and mastery in his/her field
- Potential within his/her field
- Design of proposed research project
- Laboratory skills and techniques (if applicable)

Adaptability: creativity, originality, self-reliance and language abilities, i.e. ability to communicate sufficiently to carry out the proposed research.

## Appendix 1

### LIST OF ELIGIBLE SCIENTIFIC AREAS AND SUB-DISCIPLINES

#### **Biological & Biomedical Sciences & Engineering**

Agriculture & Agronomy  
 Bacteriology  
 Behavioral Biology  
 Biochemistry  
 Biophysics  
 Biotechnology  
 Botany (Plant Biology)  
 Cardiology  
 Cell Biology  
 Conservation Biology  
 Developmental Biology  
 Entomology  
 Environmental Health  
 Epidemiology  
 Genetics  
 Hematology  
 Immunology  
 Marine Biology  
 Medicine  
 Molecular Biology  
 Molecular Medicine  
 Mycology  
 Neurology  
 Oncology  
 Ophthalmology  
 Physiology  
 Population Biology  
 Radiology  
 Toxicology  
 Microbiology  
 Virology  
 Zoology

#### **Chemical Sciences and Engineering**

Analytical & Surface Chemistry  
 Biochemistry  
 Catalysis  
 Chemical Engineering  
 Inorganic Chemistry  
 Organic Chemistry  
 Physical Chemistry: General  
 Physical Chemistry: Kinetics  
 Physical Chemistry: Physical Organic  
 Physical Chemistry: Theory & Dynamics  
 Polymer Chemistry

#### **Electrical and Materials**

##### **Manufacturing**

Aero/Astro Engineering  
 Ceramics  
 Composite Materials  
 Electrical Engineering  
 Electronic Materials  
 Instrumentation  
 Lasers  
 Magnetic Materials

Manufacturing  
 Materials Science  
 Mechanical Engineering  
 Metallurgy  
 Nuclear Engineering  
 Optical Material  
 Polymers  
 Power Engineering  
 Superconducting Materials

#### **Geological Sciences and Engineering**

Atmospheric Science  
 Civil and Mechanical Engineering  
 Environmental Science  
 Geochemistry  
 Geological Engineering  
 Geology  
 Geophysics  
 Hydrology  
 Meteorology  
 Mineralogy  
 Oceanography  
 Paleoclimate  
 Petroleum Geology  
 Radioactivity  
 Remote Sensing  
 Seismology  
 Soil Science  
 Volcanology

#### **Mathematical Sciences**

Abstract Algebra  
 Applied Mathematics (non-physics)  
 Complex Systems & Chaos  
 Computer Science  
 Geometry & Topology  
 Mathematical Physics  
 Mathematical Logic & Number Theory  
 Modern Analysis  
 Numerical Methods

#### **Physical Sciences**

Acoustics  
 Astronomy/Astrophysics  
 Atomic and Molecular Physics  
 Beams  
 Condensed Matter: General  
 Condensed Matter: Magnetic Properties  
 Condensed Matter: Structure  
 Condensed Matter: Superconductivity  
 Condensed Matter: Theory and Transport/Semiconductors  
 Electronics  
 Hydrodynamics  
 Lasers  
 Mechanics  
 Medical Physics  
 Nuclear Physics  
 Optics and Spectroscopy:  
 Nonlinear optics and Quantum Statistics  
 Optics and Spectroscopy: Lasers  
 Particles and Fields  
 Plasma Physics: Fluids  
 Space  
 Theoretical Physics  
 Thermodynamics

Quantum Computing and Cryptography

#### **Other**

## Appendix 2

### FORMER FSU WEAPONS SCIENTIST CODE LIST

Former Weapons Scientist – defined as project participants that were engaged in research at a current or former weapons laboratory or institution. Five categories of former defense researchers are provided below (Categories B, C, and D are classified as Weapons of Mass Destruction researchers):

<b>CATEGORY A: MISSILE TECHNOLOGY EXPERTS</b>	
<b>CODE</b>	<b>DESCRIPTION</b>
<b>A1</b>	Design, construction and performance of air, space, surface and underwater - launched missiles. Materials and technologies for these missiles. Production of engines, fuels, composites, integrated elements, radio-electronic equipment, different testing devices for missiles.
<b>A2</b>	Techniques for guidance and control of missiles from launching to impact. Includes optical guidance, television guidance, wire guidance, present and terminal guidance, internal guidance, command guidance, and homing guidance.
<b>A3</b>	Missile handling and launching, including transportation, storage, and preparation for launching. Air, space, surface and underwater launching and support equipment and technologies; Checkout equipment and procedures. Guided missile ranges.
<b>A4</b>	Techniques and systems for tracking missiles as defensive measures. Can be from surface installations or air and space-borne platforms.
<b>CATEGORY B: CHEMICAL WEAPONS EXPERTS</b>	
<b>B1</b>	Design and performance of missile warheads and rockets for delivery of chemical weapons.
<b>B2</b>	Materials, facilities and performance processes needed for the production of chemical weapon agents and their key precursors.
<b>B3</b>	Dissemination of chemical weapon agents.
<b>B4</b>	Basic knowledge on CW design and their effect on human system.
<b>CATEGORY C: BIOLOGICAL WEAPONS EXPERTS</b>	
<b>C1</b>	Design and performance of missile warheads and rockets for delivery of biological weapons.
<b>C2</b>	Biopolymer production related to biological warhead capabilities.
<b>C3</b>	Dissemination of biological weapon agents.
<b>C4</b>	Basic knowledge on BW design and their effect on human system.
<b>CATEGORY D: NUCLEAR WEAPONS EXPERTS</b>	
<b>D1</b>	Basic knowledge of Nuclear Weapons design, construction, characteristics and the effect on human system,
<b>D2</b>	Design, construction and performance of missile warheads for delivery of nuclear weapons.
<b>D3</b>	Design, construction and performance of the equipment and Components for Uranium and Plutonium separation.
<b>D4</b>	Design, construction and performance of the equipment connected with Heavy Water Production.
<b>D5</b>	Design, construction and performance of the equipment for Development of Detonators.
<b>D6</b>	Design, construction and performance of Explosive Substances and Related Equipment.
<b>D7</b>	Design, construction and performance of the equipment and Components for Nuclear Testing.
<b>D8</b>	Design, construction, performance and operation of production-type nuclear reactors for fissile and tritium-content materials production (breeding).
<b>D9</b>	Design, construction, performance of nuclear reactors and units for submarine and for military space program.
<b>CATEGORY E: OTHER</b>	
<b>E1</b>	Design, construction, and performance of powerful laser facilities for military applications.
<b>E2</b>	Design, construction and performance of accelerator facilities for military applications in space programs
<b>E3</b>	Others