Postdoctoral Associate (Theoretical Physics, Quantum Biology), will have at least a Doctorate of Philosophy in physics, quantum sciences, biophysics, computational sciences, or related field and have at least some research experience in an area of biology, chemistry, or biophysics. The individual should be adept at programming for the purpose of analyzing quantitative data and writing related research reports. The postdoctoral scholar will be responsible for the implementation and simulation of quantum optical models of chromophore aggregates in protein architectures, and performing basic analytics and statistics on the models. A solid foundation in theoretical physics is required, covering statistical mechanics, dynamical systems, quantum optics, and at least some quantum electrodynamics. The postdoctoral scholar will spend the majority of their time developing quantum optics and open quantum systems models, applying density functional theory techniques for distinguishable multi-chromophore arrangements, and building realistic computational biophysics models of protein architectures. A working knowledge of numerical molecular dynamics simulations, the use of symbolic manipulation codes like Mathematica, familiarity with MATLAB, and experience in UNIX-based programming on high-performance computing systems is preferred. The postdoctoral scholar should also have a basic knowledge in condensed matter or biophysics and experience in interdisciplinary collaboration with experimentalists. Duties and responsibilities include developing models and quantitative predictions to interpret femtosecond spectroscopy outcomes and suggesting new experimental tests when needed. Must be able to interact, where and when necessary, with younger or less experienced collaborators, as well as senior personnel.

SUPERVISORY
ACCOUNTABILITY:
Involves no responsibility or authority for the direction of others.

NATURE AND SCOPE:

Internal contacts include assistant/associate deans, directors, department heads/chairs, faculty, staff, and students at the college and school levels; and deans, directors, and executive-level officers at the University level. External contacts include governmental agencies such as Federal and the District of Columbia Agencies, scientific and technical professionals, students, collaborators, and the general public.

PRINCIPAL
ACCOUNTABILITIES:
Participates in academic, didactic, and professional training provided through seminars, workshops, and direct meetings with grant faculty.

Coordinates and ensures development of pertinent reports for funders and the scientific community in a timely fashion.

Conducts data collection, statistical analysis, and data interpretation responsibilities relevant to the grant and research portfolio.

Participates in grant writing, development of manuscripts and reports, and conduct of primary and secondary data analyses.

Performs other related duties and responsibilities as may be assigned from time to time by the PI, especially those related to research, mentoring, and interdisciplinary projects.

Performs other related administrative, fiscal, and technical duties as assigned.

CORE COMPETENCIES:

Demonstrated analytical and problem-solving skills.

Demonstrated technical computing experience and knowledge, including open-source and commercial software packages such as Python, PyMOL, Mathematica, Intel MKL, Gaussian, Quantum Espresso, DFTB, QuTiP, etc.

Competence in both oral and written English and ability to articulate concisely and in a professional manner. Ability to maintain confidentiality of information. Ability to work effectively in a team-oriented interdisciplinary and international environment.

MINIMUM
REQUIREMENTS:
Doctorate of Philosophy (Ph.D.) in physics, quantum sciences, biophysics, computational sciences, or related field and have at least some research experience in an area of biology, chemistry, or biophysics.

Note: This position description should not be construed to imply that these requirements are the exclusive standards of the position. Incumbents will follow any other instructions, and perform any other related duties, as may be required. The university has the right to revise this position description at any time. This position description is not be construed as a contract for employment.