The Instituto de Ciencias Físicas of the Universidad Nacional Autónoma de México (Institute for Physical Sciences, UNAM) is seeking for young research scientists in one of the following areas of research:

I) Theoretical and computational physics  
II) Biophysics and/or material sciences  
III) Complex systems  
IV) Experimental atomic, molecular, optical and plasma physics

Applicants should have a Ph. D in Physics or a related field and postdoctoral experience in one of the above mentioned areas.

Applicants must be able to work in a multicultural environment as part of a team as well as to develop their own line(s) of research.

Candidates should be fluent in English and are expected to be fluent in Spanish by the end of the first year if renewal of the position is applied for. The age limit at the time of hiring for female /male applicants is 39/37 years, respectively.

After successfully completing a probatory period of three years, the post may become permanent. The basic monthly salary corresponding to the level of Investigador Asociado C TC (full time associated scientist C) is 18 398.26 MXN (933 USD).

Job description:

Carry out research in any one of the above mentioned areas.

Teaching activities at the undergraduate and/or graduate levels (one course per semester) and supervise thesis projects at the undergraduate level. Participate in the organization of scientific events sponsored by the Institute.

The applications must include:

A letter addressed to the Director of the Institute, Dr. Jaime de Urquijo, asking to be considered in the process, a detailed Curriculum Vitae and a research project in any of the areas listed above. The list of publications must include the DOI and the number of citations for each article.

Applications must be send in electronic PDF to the Secretary of Academic Affairs of the Institute: pepe@icf.unam.mx with copy to secacademica@icf.unam.mx
THEORETICAL AND COMPUTATIONAL PHYSICS

Optical Properties of Matter (theory)

The candidate should have knowledge and experience in condensed matter theory, electrodynamics, linear and nonlinear optics, metamaterials, photonic crystals, plasmonics, and to manage concepts such as spatial dispersion and the way it relates the permittivity, the permeability and the optical activity. He/she should be capable of translating theoretical concepts into computer programs using modern paradigms such as object oriented programming.

Gravitation and Cosmology

The applicant should be expert in at least one of the following topics: Modern mathematical methods in gravitation and cosmology, approximation methods and numerical simulations in relativistic astrophysics and cosmology, gravitational waves and their astrophysical and cosmological aspects, post-Newtonian theory, astroparticle physics, dynamics of gravitational collapse.

Simulations in Soft Condensed Matter

The candidate should have experience in computer simulating the kinetics of such soft condensed matter processes as colloidal aggregation, colloidal crystallization, protein crystallization, etc., and their approach to equilibrium. He/she should be knowledgeable of, and capable of developing, computer programs in high level languages like C, C++, FORTRAN, etc. An experience in algorithms such as Kinetic Monte Carlo and/or Molecular Dynamics and/or Brownian Dynamics is desirable.

Mathematical Optics

The applicant should be knowledgeable and have experience in: Canonical transformations in phase space, unitary transformations in pixellated images, Wigner functions on groups, superintegrable Zernike system.

Quantum Optics

The applicant should have knowledge and experience in at least one of the following topics: quantum mechanics, linear and nonlinear optics, matter-light interaction, optomechanics, Dynamical Casimir Effect. He/she should be capable of translating theoretical concepts into computer programs.
COMPLEX SYSTEMS

Complex systems

The applicant should be someone working in the overlap of statistical mechanics and complex systems, in order to collaborate with Maximino Aldana, Hernán Larralde, Francois Leyvraz and Gustavo Martinez Mekler, members of the group of complex systems at the Institute.

Elastic waves

The applicant should have knowledge and experience in transport of elastic waves and/or in mechanical metamaterials.

BIOPHYSICS AND/OR MATERIALS SCIENCE

Molecular simulations

To work on the modeling and simulation of molecular systems at various scales, from quantum calculations to classical molecular dynamics, applied to studies of: (a) aqueous solutions of metalloids and metals, (b) transfer of molecules through membranes, (c) inhibition of crystal growth induced by specific molecules.

EXPERIMENTAL ATOMIC, MOLECULAR, OPTICAL AND PLASMA PHYSICS

Spectroscopy

The applicant should have knowledge and experience in FTIR Spectroscopy and/or Raman Spectroscopy and at least one year of posdoctoral experience.