The Nuclear Theory Group at Indiana University is seeking to fill several postdoctoral research associate positions in theoretical nuclear physics, hadronic physics and QCD, or astrophysics. The Nuclear Theory Group consists of four faculty members, two postdoctoral associates and several graduate students. Current main research directions include: hadronic physics, QCD, amplitude analysis, heavy ion physics, and dense matter in nuclear astrophysics. These efforts are headquartered within the Indiana University Center for Exploration of Energy and Matter. See more information at: http://ceem.indiana.edu/nucleartheory.shtml.

The nuclear astrophysics research focuses on dense matter and how this is probed with photons, gravitational waves, and neutrinos (see http://physics.indiana.edu/~charlie/). The research also includes related laboratory experiments on neutron-rich matter such as the Lead Radius Experiment (PREX) and large-scale molecular dynamics simulations of neutron star crust material. Finally there is the opportunity to perform large-scale density functional calculations of nuclear pasta and neutron star crust material as part of the NUCLEI nuclear structure collaboration.

The amplitude analysis in hadron spectroscopy links experimental data on hadron production through analysis of analytical properties to QCD and effective theories with the goal of extracting and interpreting resonance parameters. This effort provides theoretical support for current and future experiments including BESIII, COMPASS and Jefferson Lab.

The quark-nuclear physics research investigates the quark/gluon structure of nucleons and nuclei, and also studies how the nucleus can be used to obtain information regarding the nucleon's structure. Some of these efforts are closely related with the possibility of a future electron-ion collider (EIC) facility to study quark-nuclear physics by colliding beams of high-energy electrons with beams of protons and light ions, or with beams of "heavy ions" such as gold nuclei.

The heavy ion physics research focuses on the theoretical understanding of hot and dense QCD matter as well as phenomenological studies of heavy ion collisions that create such matter in laboratories. These activities are strongly connected with experiments at the Relativistic Heavy Ion Collider (RHIC, http://www.bnl.gov/rhic/) and the Large Hadron Collider (LHC, http://lhc.web.cern.ch/lhc/).

The duration of the positions is for one year with possible renewal for up to three years. The expected start date will be September 1st, 2013. Applicants should send their Curriculum Vitae, publication list, a statement of research interests, and three letters of recommendation to:

NTC/CEEM Postdoctoral Search
Attn: Janet Meadows.
Center for Exploration of Energy and Matter
2401 Milo B. Sampson Lane
Bloomington, IN 47408

Alternatively the application materials may be sent by email to: jmeadows@indiana.edu in a printable format such as Acrobat PDF or MS Word. Please reference the OAA# 21209-19 on all correspondence. For full consideration all applications should be completed by December 1, 2012.

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