NATIONAL CENTRE FOR PARTICLE, ASTROPARTICLE AND NUCLEAR PHYSICS

February 19th, 2009

Personnel Contracts with CPAN partial financial support

The CPAN project of the CONSOLIDER–INGENIO 2010 program announces 9 contracts of personnel with partial financial support from CPAN. The proposed contracts are meant to provide technical support to the groups' research activities in a series of priority lines within the strategic actions of the CPAN Project. A detailed description of these contracts, 7 university graduate degrees and 2 university intermediate degrees, can be found in Annex I. The maximum duration of the CPAN financial support assigned to each appointment will be two years.

The groups participating in the CPAN Project will make an effort to give publicity to the present announcement in order to optimize the number and quality of the applications received.

1) Amount and nature of the financial support

The CPAN financial support for each of the contracts specified in Annex I will have the aim of co-financing the total contract cost, understood to be the sum of the net retribution plus the Social Security company fee. The beneficiary entities will hire the selected candidates in accordance with the current labour legislation.

For personnel with a university graduate degree, the amount of the CPAN financial support will be 30.000 euro per year, and the minimum annual retribution they will receive, which must be indicated in the contract, is 27.000 euro (brut salary).

For personnel with an intermediate university degree, the amount of the CPAN financial support will be 25.000 euro per year, and the minimum annual retribution they will receive, which must be indicated in the contract, is 22.000 euro (brut salary).

The remaining co-financing of the contract will be the responsibility of the beneficiary groups and organisms, who will assume the cost of retribution increments of the hired personnel in the following years, as well as the repercussions of any increases in the Social Security fee. The given financial support will be compatible with other aids or subsidies, as long as they do not jointly exceed the total cost of the contract.

The beneficiary entities are obliged to put at the appointee's disposition all the installations and material means needed for the normal development of their work, as well as to guarantee the same rights and benefits enjoyed by the entities' personnel of similar category.

In case of interruption of the contract, the beneficiary entity and the appointed personnel are obliged to communicate such interruption to the CPAN Coordinator within 15 natural days from the date of the interruption.

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2) Candidate requisites

People whose contract is co-financed through this aid must have a graduate or intermediate university degree as required by the contract to which they apply. Candidates must be in possession of the required degrees by the date in which the application is presented.

3) Formalization and Application Process

Applications will be presented by the candidates through an internet application which can be accessed from the WEB page of the CPAN project: http://www.i-cpan.es. Applications must include:

1) The candidate's personal information.
2) The type of contract to which the candidate opts.
3) The candidate's Curriculum Vitae, including a scanned copy of the academic certification and university degree.

Applications must be presented from February 20, 2009 to March 12, 2009 (both inclusive).

The beneficiary group shall complete the application with a report about the optimal fitness of each candidate for the foreseen activities, assigning a tentative priority order to each candidate. These reports will also be processed through the internet application installed in the CPAN WEB page. The deadline for these reports is March 20, 2009.

4) Evaluation of applications

The evaluation of applications will be done by an Evaluation Commission named by CPAN's Executive Committee. The referred Commission will study and order the applications according to the following rules:

1) Compliance of the candidate to the development of the tasks to be performed, as function of the technical skills required.
2) CV of the candidate.

The resolution with the list of selected candidates will be published in CPAN's web page. The Evaluation Commission will propose, if needed, a list of supplants.

The proposed candidates must confirm in a period of 15 natural days their acceptance by means of e-mail which must be sent both to the receiving group as well as to the CPAN coordinator. If no notification is received within that period, the CPAN's Executive Committee will be entitled to select the following candidate in the list of supplants.

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5) Payment of the CPAN financial support and follow-up

In general, the assigned funding will start on the date in which the contract between the candidate and the corresponding organization starts, either after the publication of the resolution or before that, in this last case always having as limitation the date in which the period for presenting applications is open.

Payments will be done on an annual basis to the corresponding organizations. The payment procedures for the first year will start after the publication of the resolution as soon as the contract being financed is presented. The payment for the following year requires the previous presentation (and positive evaluation by CPAN's Executive Committee) of a scientific-technologic report resuming the activities performed, signed by the contracted person and the IP responsible for the corresponding CPAN's group.

Any publication or result related with the activities performed under this program must contain a reference to the CPAN financial support.

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ANNEX I: Relation of Contracts

Reference: CPAN09-TS01

"Radiation Detector Process Engineer in the Clean room of IMB-CNM"

CPAN group: Instituto de Microelectrónica de Barcelona CNM-IMB (CSIC)

Candidate requirements:

Applicants should have a Degree in engineering, physics, chemistry or similar with proven experience in fabrication, design and test of semiconductor radiation detectors and Clean Room microelectronic processing.

Job profile:

Main responsabilities of the candidate will be:

- Preparation and supervision of semiconductor detector fabrication run in the Clean Room of CNM-IMB
- Responsible or operator of CNM equipments related to detector technology as bump-bonder, CMP (Chemical Mechanical Polishing), Wafer grander, wafer aligner
- Support to bump-bonding tasks
- Tasks related to technological developments related to new detectors (as, for instance, APDs, SiPM, neutron detectors, pixel detectors, radiation hard detectors)
- Detector test support

Information and contact: Prof. Manuel Lozano. e-mail: manuel.lozano@cnm.es

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Reference: CPAN09-TS02

"Optimization of the IGFAE computer resources use, in order to facilitate the widespread access to GRID computer technologies"

CPAN group: IGFAE, University of Santiago de Compostela.

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Candidate requirements:

Applicants should have a degree in some scientific area (Ph.D., graduate, engineer). Advanced knowledge of LINUX system administration and basic knowledge of GRID computing technologies.

Job profile:

The candidate will be responsible of the design and start-up of the reorganization of the IGFAE computer resources in order to optimize its use and to favorise the access to GRID technology to all the groups that still don´t use it.

Information and contact: Prof. José Luis Miramontes Antas. e-mail: jluis.miramontes@usc.es

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Reference: CPAN09-TS03

"Analysis of inclined showers in the Auger experiment with *Offline*"

CPAN group: IGFAE, University of Santiago de Compostela.

Candidate requirements:

Degree in Physics or Engineering with experience in the official software of the Auger collaboration and knowledge of C++ programming and Linux systems. Experience in data analysis and availability for travelling will be valuable.

Job profile:

The candidate will participate in the group activities related to the Auger Observatory and will be responsible of supervising the adaptation of the code that reconstructs inclined showers which is being performed in Karlsruhe. He/she will help the members of the host group to the new platform.

Information and contact: Enrique Zas (enrique.zas@gmail.com)

Reference: CPAN09-TS04

"Development of a prototype of a high-pressure Xenon detector for the NEXT experiment and collaboration in the initial operation of the magnet of the near detector of T2K"

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CPAN group: IFAE Barcelona

Candidate requirements:

Applicants must hold a Degree in Physics or Engineering. Experience in the operation of gas, vacuum and data acquisition systems, gas-based detectors of ionizing radiations, numerical simulations and knowledge of C++ programming will be valuable. A good level of English (spoken and written) and flexibility for spending periods in Japan during the first year of contract is a must.

Job profile:

The candidate will take part in the development, installation and start up of a high-pressure (10 bar) system of Xenon gas. She/he will collaborate in the design, construction and start up of a reading system based on a matrix of light sensors of the Avalanche Photodiode (APD) type, as well as in the operation and analysis of the results depending on the candidate qualifications.

The candidate will contribute to the installation of the slow control system of the magnet which monitors in real time the working parameters of the magnet such as the temperature, pressure, water flux, magnet voltage, current, etc. The system is mounted on a PLC controller of Siemens with reading software based on the C++ programming language. The candidate will supervise the installation and start up of the distribution system of the cooling water. This system has been designed at IFAE.

Information and contact: Dr.Federico Sánchez, e-mail**: fsanchez@ifae.es**

Reference: CPAN09-TS05

"Collaboration in the design of cameras of solid state photo-detectors and readout electronics for the CTA project"

CPAN group: Complutense University of Madrid

Candidate requirements:

Applicants must hold a Degree in Engineering (Electronics), Physics with Electronics profile or similar, with knowledge of opto-electronic solid state devices and photomultipliers (PMTs), as well as Analogue and Digital Electronics. Availability for travelling and perform training stays abroad will be valuable.

Job profile:

The candidate will work in the design of clusters based on PMTs and Avalanche Photodiodes in Geiger-Mode (GAPD) including all the associated readout electronics, and will participate in

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the prototypes of Cerenkov telescopes cameras for the CTA project with the group at the Complutense University of Madrid.

This will require the assembly and test of last generation chips for the digitalization and simultaneous monitoring of multiple wave forms with bandwidths larger than 1 GHz. In addition, she/he will work on the design and assembly of testing arrays using PMTs y GAPDs in Single Photoelectron Counting, Crosstalk, noise and response time of the detectors arrays.

Information and contact: Prof. Maria Victoria Fonseca, e-mail: fonseca@sagan.gae.ucm.es

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Reference: CPAN09-TS06

"Low background techniques in experiments of Neutrino and Axion Physics"

CPAN group: University of Zaragoza

Candidate requirements:

Degree in Physics or Engineering. General experience in a laboratory, in particular in experimental particle physics, will be valuable.

Job profile:

The candidate will participate in the activities that the host group carries out within the programme of experimental neutrino and axion physics, in particular in the Canfranc Underground Laboratory (BiPo and NEXT experiments), although eventually also at CERN (CAST experiment). The period of the contract will witness an intense activity characterized by the preparation and installation of the first assemblies of the above-mentioned experiments in the new underground facilities of the LSC. The candidate will contribute to the experimental work on such assemblies (design, construction, characterization, operation, acquisition) and more specifically on the low background aspects related with them (radon, shielding, material radiopurity, background studies, …).

Information and contact: Julio Morales Villasevil (jmorales@unizar.es), Igor G. Irastorza (Igor.Irastorza@cern.ch)

Reference: CPAN09-TS07

"Development of procedures for the automatization and control, within a GRID environment, of massive simulation / reconstruction of data from the Pierre Auger Observatory"

CPAN group: University of Granada

Candidate requirements:

Degree in Computing Engineering.

Job profile:

The candidate must have experience in using C++, Unix systems, GRID environments, databases and ability to develop scripts in the different languages. She/he will work full time in the group to the shower simulation and reconstruction of the Pierre Auger Observatory, and her/his main tasks will be: development of procedures for the automatization of the production of simulated events and reconstruction of real data; development of databases for controlling the various production lines; development of a GRID environment, which unifies the computing efforts of the Spanish groups for their participation in the future project known as Auger North.

Information and contact: Antonio Bueno; a.bueno@ugr.es

Reference: CPAN09-TM01

"Simulation and test of silicon sensors built in standard microelectronics CMOS technologies"

CPAN Group: University of Barcelona

Candidate requirements:

Bachelor in electronics engineering or bachelor in physics knowledgeable in electronics. The willingness to travel and spend training periods abroad will be highly rated.

Job profile:

The selected candidate will participate in the development of sensors for tracking systems for future experiments like the ones in the International Linear Collider (ILC) or Compact Linear Collider (CLIC), being low material budget silicon sensors the most promising solution. The developments might be also useful for SLHC projects, like SLHCb in which the group is involved. His main task will be the simulation and test of sensors fabricated in standard CMOS technologies. This kind of technologies allows monolithic integration of sensors and electronics, thus the candidate must have some knowledge of electronics.

Information and contact: Prof. Lluis Garrido; e-mail: garrido@ecm.ub.es

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Reference: CPAN09-TM02

"Participation in the design study of the front end electronics of the CTA"

CPAN Group: University of Barcelona

Candidate requirements:

Minimum academic level: bachelor in electronics engineering, bachelor in physics knowledgeable in electronics. The willingness to travel and spend training periods abroad will be highly rated.

Job profile:

The selected candidate will participate in the development of the front end electronics for the design study Cherenkov Telescope Array (CTA). The technician will provide support in the following points:

- Test of the photo-sensor interface with the electronics.
- Characterization of the electronics.
- Development of a test readout system:
  - Hardware development: printed circuit board design and hardware description languages (VHDL o VERILOG).
  - Software developments.

Information and contact: Prof. Lluis Garrido; e-mail: garrido@ecm.ub.es

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