

## The International School for Advanced Instrumentation (ISCAI)

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**Summary:** *The International School for Advanced Instrumentation (ISCAI) is a major collaborative international initiative in higher education that aims to become a centre of excellence to learn expertise in all areas related to the construction of cutting-edge scientific instrumentation, with a particular emphasis on astronomical instrumentation. The ISCAI will offer a highly specialized set of courses and laboratory work to be held in several astronomical institutions with world-class instrumentation programs, in collaboration with high-tech companies with expertise in design and construction of scientific instrumentation. It will be open to astronomers, physicists and engineers world-wide. A pilot program will start in January 2008, funded by the Consolider-Ingenio 2010 grant “First Science with the GTC”, under the Consolider-Ingenio Programme of the Spanish Ministry of Education and Science.*

### 1-Rationale:

The demand for increasingly complex instruments built by increasingly larger international teams poses a major challenge for the astronomical community in this new era of large space and ground-based astronomical facilities. Specifically, there is an urgent need for a large enough workforce of specialized personnel in all areas of instrumentation that can:

- (i) assume the leadership of the many instrumentation projects planned for the near future;
- (ii) work as senior opto-mechanical, electronics, and software engineers in their design and construction;
- (iii) manage the increasingly complex international partnerships needed to build them; and
- (iv) train the support astronomers and engineers that will be responsible for their optimum performance during their lifetime at the various telescopes.

The education of such a highly skilled workforce in the area of scientific instrumentation is the main rationale behind the creation of the ISCAI. This School will be the first such international facility in the world.

## 2- Education Statement:

The IScAI is open to astronomers, physicists, and engineers world-wide. The IScAI will offer its students:

(i) a prestigious, highly-specialized curriculum of courses in frontline scientific instrumentation that will provide the students with the necessary expertise to become Principal Investigators responsible for the construction of the future generation of instruments for ground-based and space observatories.

(ii) internships working with world-class instrumentation groups in academic institutions and high-tech companies that will provide the students with a hands-on lab experience, and contacts to help develop their professional careers.

## 3- Pilot Program:

The IScAI will start in 2008 with a pilot program. This program will offer a reduced plan of the School activities and will serve as a testbed to help define the final format and scope of the School. The pilot program consists of two months of course work (from early-January to early-March), three and a half months of lab work (from early-March to end-June), and one week for presentations and evaluations (first week of July).

All expenses resulting from the students visits to the IScAI participating institutions or collaborative partner centers will be covered by the IScAI.

In addition the IScAI is offering 6 grants, including a 1,600 euros monthly salary and a travel grant. The IScAI grant is offered to those potential candidates who are not receiving any financial compensation as a result of carrying out any professional activity, either as an employee or as a self-employed person, nor is receiving unemployment benefit or enjoying another grant.

Funding for this pilot program will be provided by the Consolider-Ingenio 2010 grant “First Science with the GTC”, under the Consolider-Ingenio Programme of the Spanish Ministry of Education and Science

A full description of the application procedure to participate in this pilot program has been published in the ‘Boletín Oficial del Estado’ (BOE) n. 244, of October 11, 2007. The deadline for submission of all application materials is November 26, 2007.

There will be five courses offered in this pilot program:

- **Optics:** Dr. Stephen Eikenberry (UF)
- **Mechanics:** Mr. Vicente Sánchez (IAC)
- **Electronics:** Mr. José Javier Díaz (IAC)
- **Software:** Dr. Nicolás Cardiel (UCM)
- **Management:** Dr. Marisa García Vargas (Fractal)

Students will be able to carry out their laboratory work at participating institutions. The following academic institutions and companies have already confirmed their participation: Instituto de Astrofísica de Canarias (IAC), Universidad Complutense de Madrid (UCM), University of Florida (UF), Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), Universidad Nacional Autónoma de México (UNAM), GMV and Fractal SLNE.

Further information, about the IScAI is available at:  
<http://www.iac.es/consolider-ingenio-gtc>

If you have any questions about the IScAI, please contact the Manager of the Consolider Ingenio-2010 “First Science with the GTC” Programme, Dr. Mercedes Franqueira ([mmf@iac.es](mailto:mmf@iac.es)). The IScAI is administered by the IScAI Board of Directors. Current members of the IScAI Board of Directors are: Dr. José Miguel Rodríguez Espinosa (IAC), Dr. Rafael Guzmán (UF & UCM), Dr. Artemio Herrero (IAC), Dr. Jesús Gallego (UCM), Dr. Ramón García (IAC), and Dr. Enrique Joven (IAC).