



The ING Studentship, INT Support and Research Programme

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ABSTRACT : For more than a decade, the ING studentship programme has offered European astronomy students an opportunity to train as observers on a medium-sized ground-based optical telescope, namely the renowned 2.5-m Isaac Newton Telescope (INT) run by the Isaac Newton Group (ING, a UK-SP-NL institution) on the beautiful Spanish island of La Palma in the Canary Islands! Practical training of the European students and hopefully future astronomers is essential in the era of very large telescopes and their queue-scheduled observing, which limits direct access to the observatories by young astronomers. Each year the ING therefore offers 4-5 talented astronomy students the opportunity to spend one year working as support astronomers at the INT (setting up the instruments, helping visiting observers and observing few INT discretionary nights) and working with ING staff on technical and science projects. High above the clouds at 2400 m, on the edge of the gorgeous Caldera de Taburiente of La Palma, stands the "Roque de Los Muchachos" Observatory (ORM) of the Instituto de Astrofísica de Canarias (IAC), part of the European Northern Observatory (ENO). Year after year, our studentship programme contributes to a better prepared future generation of astronomers. We present some technical and science achievements of our past ING students, encouraging talented students to apply next years announced in Feb-Mar via <http://www.ing.iac.es/astronomy/science/studentship.html>

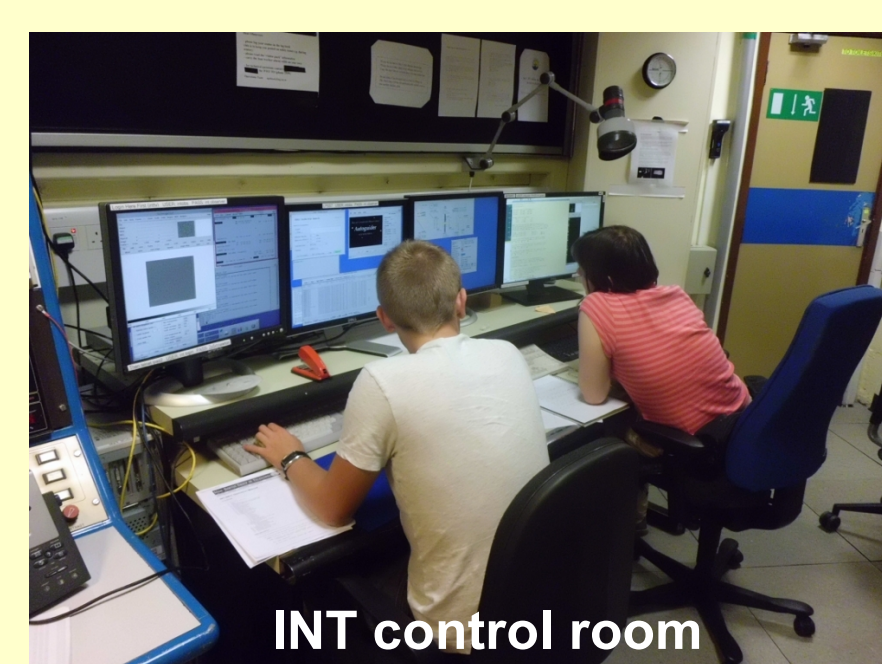
Introduction

The 2.5-m Isaac Newton Telescope (INT) is operated at the Observatorio del Roque de los Muchachos (ORM) on the island of La Palma (Canary Islands, Spain) by the Isaac Newton Group of Telescopes (ING). Despite its respectful five decade age, with about 70 ISI publications each year the INT remains one of the first world-wide 2m class productive telescope!

The INT is used for astrophysical research by a large community of astronomers from the 3 sponsoring countries (UK, NL, SP) and others worldwide. Currently houses two instruments:

- > **Wide Field Camera (WFC)**, which offers one of the largest available broad- and narrow-band filter sets for wide field imaging;
- > **Intermediate Dispersion Spectrograph (IDS)**, a very versatile long-slit spectrograph.

Its imaging and spectroscopic capabilities make the INT a unique hands-on training facility for students in astronomy or instrumentation. All INT observations are run in visiting mode, so a high degree of interaction with visiting astronomers working in a wide variety of topics is guaranteed, while in the future a small fraction of service time could be offered and observed by the students.



ING resident studentship program

Since 2002, the ING studentship program has offered 52 studentship positions consisting is one year ING residency for about 4 students (PhD/MSc/BSc) to train about the operations of an observatory.

During their stay the student main duties consist of managing and supporting all the INT observations using the WFC and the IDS. They are also involved in ING projects related to instrumental, optical or software development, improvement and/or characterization of instruments for both ING telescopes (INT and the 4.2m William Herschel WHT). Besides, they have about 60% left time for their own research (PhD or/and collaborations with ING astronomers).

Our program allows students to get in contact with the instrumental and engineering side of an observatory. They are trained on how to operate the telescope and solve technical problems. They learn how to setup the instruments for the observers (mounting filters, gratings, focusing the spectrograph, quality control tests, etc).

Besides the technical knowledge of the telescope and the instrumentation, ING students learn and deal with many observing techniques as a result of carrying out different kinds of observing programs and discretionary tasks.

Students are also in contact with the visiting astronomers performing different science cases. This provides the students with a wider perspective of the astrophysical research. In this enriching environment they have the opportunity to pursue their own research.

Briefly, there are four advantages for enrolling in our ING program:

- > Boosting your CV with one year observing and support experience;
- > Increasing your publications via paper co-authorship based on INT observations;
- > Learning Spanish while living in its home language environment;
- > Living one gorgeous year surrounded by sub-tropical wonders of "La Isla Bonita"!

Other ING training agreements

Astronomers at the Iranian National Observatory (INO) are planning the construction of a 3m class telescope in Iran. To provide the Iranian community with a broader base of observational experience, some Iranian student astronomers visit ING for extended periods, training up as INT support astronomers and assisting visiting Iranian teams for INT observations. Since 2010, we have hosted and trained 4 such Iranian students.

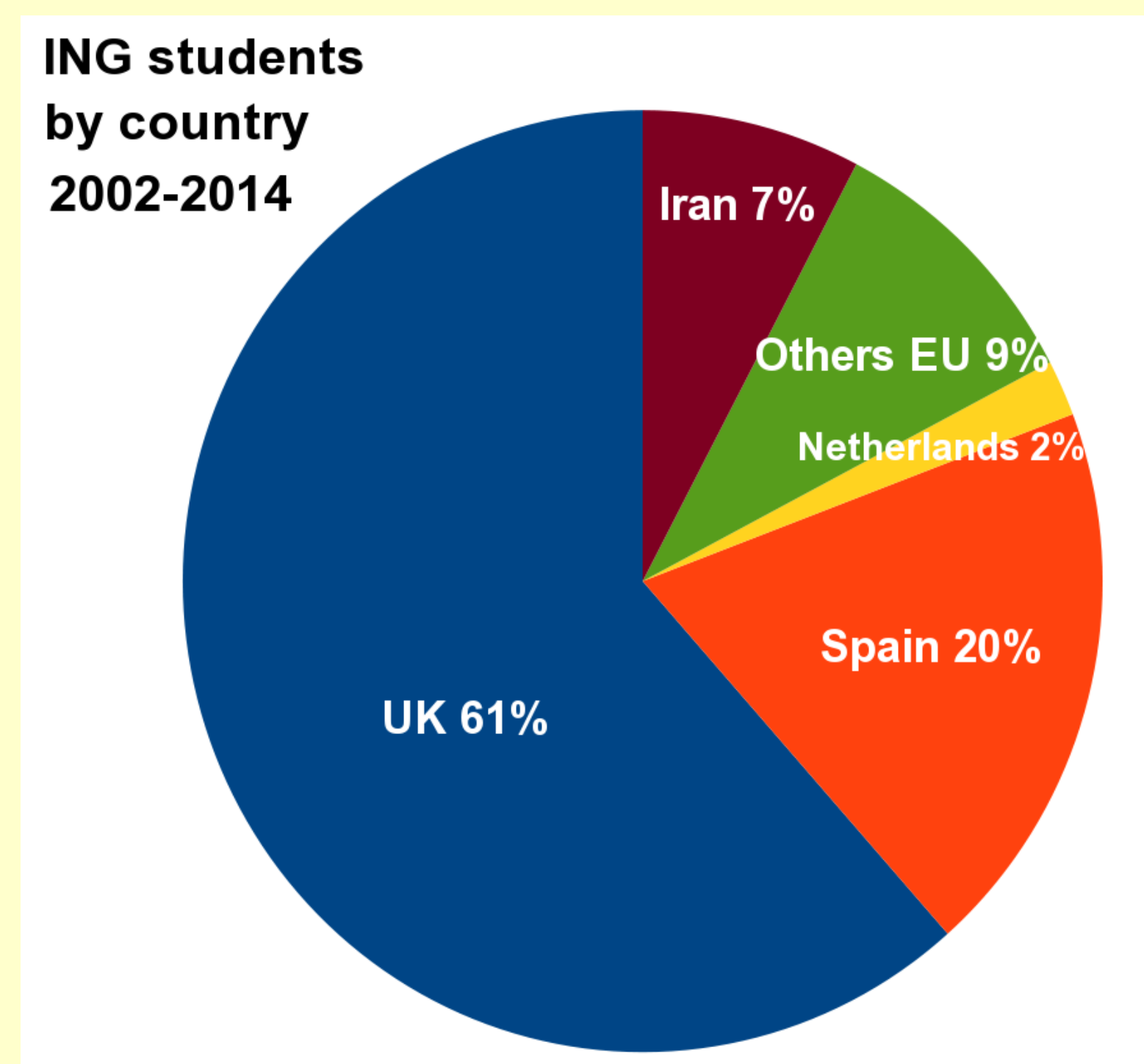
The Physics and Astronomy program of Sheffield University (UK) has been very active in establishing the ING studentship program in its early phase, sending over the years in total 10 Sheffield students. During past semesters, the Spanish University of La Laguna (ULL) and the Dutch Groningen and Leiden universities are sending undergraduate students for INT observing runs. The ING is encouraging other universities, institutes and countries to look into similar observational training agreements using the INT under similar schemes.

On occasional basis, the ING could host 1-2 summer students for 2-3 months to work in some technical and science projects supervised by ING astronomers or other staff. Among such recent projects we count the ING archive database, dwarf galaxies, globular clusters, exoplanets, asteroids and NEAs, optical lab experiments, etc.



Students by country of origin

Since 2002 and including 2014/15 students to arrive soon, ING has hosted 52 annual regular students from different nationalities and institutions, who have been formed as support astronomers. In the accompanying figure we show the percentage of students coming from the different countries. Most of the students come from UK (mainly from Sheffield, Hertfordshire, Belfast and Manchester), while Spain is the second country in students to the ING, mainly from IAC.

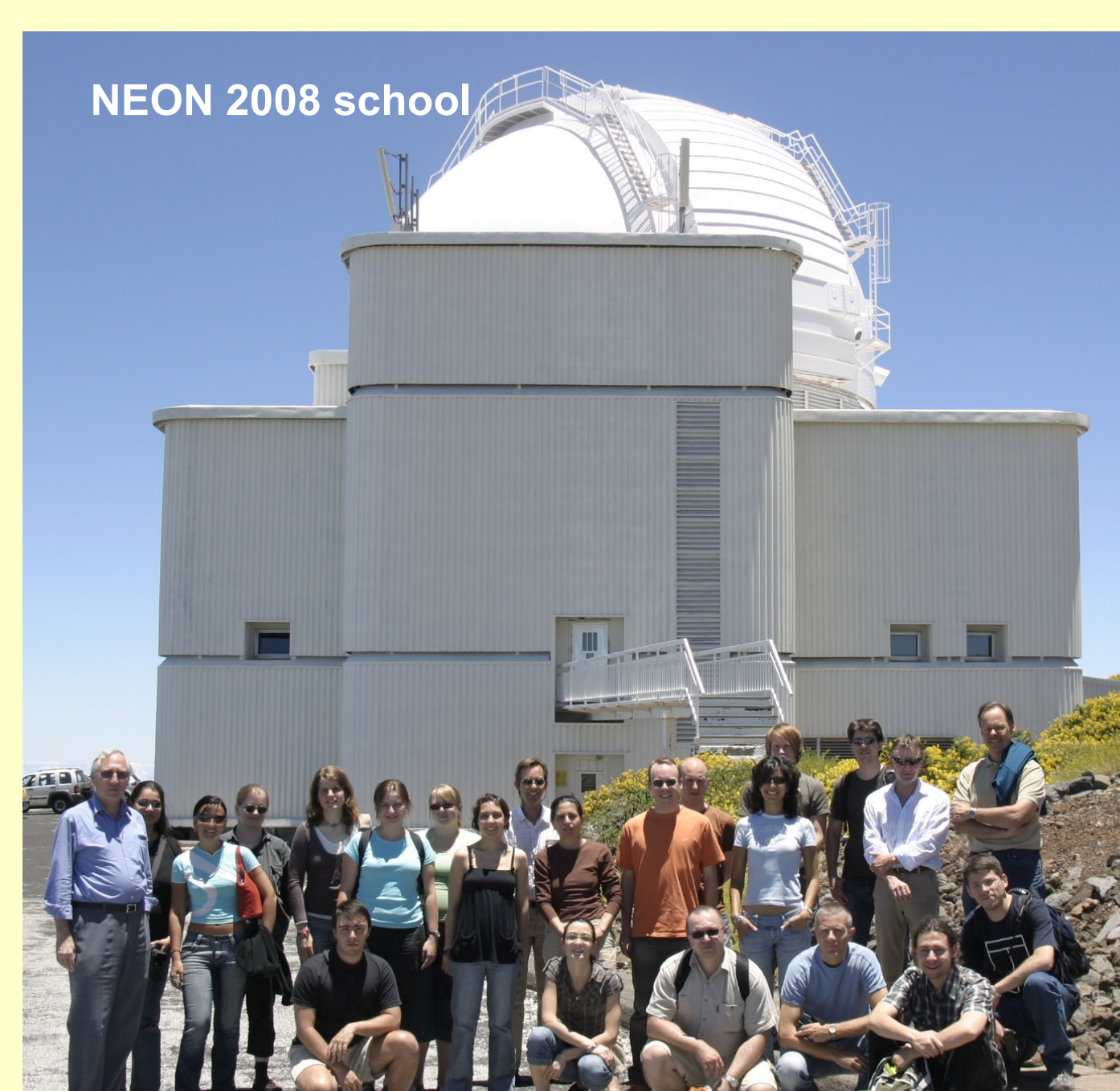
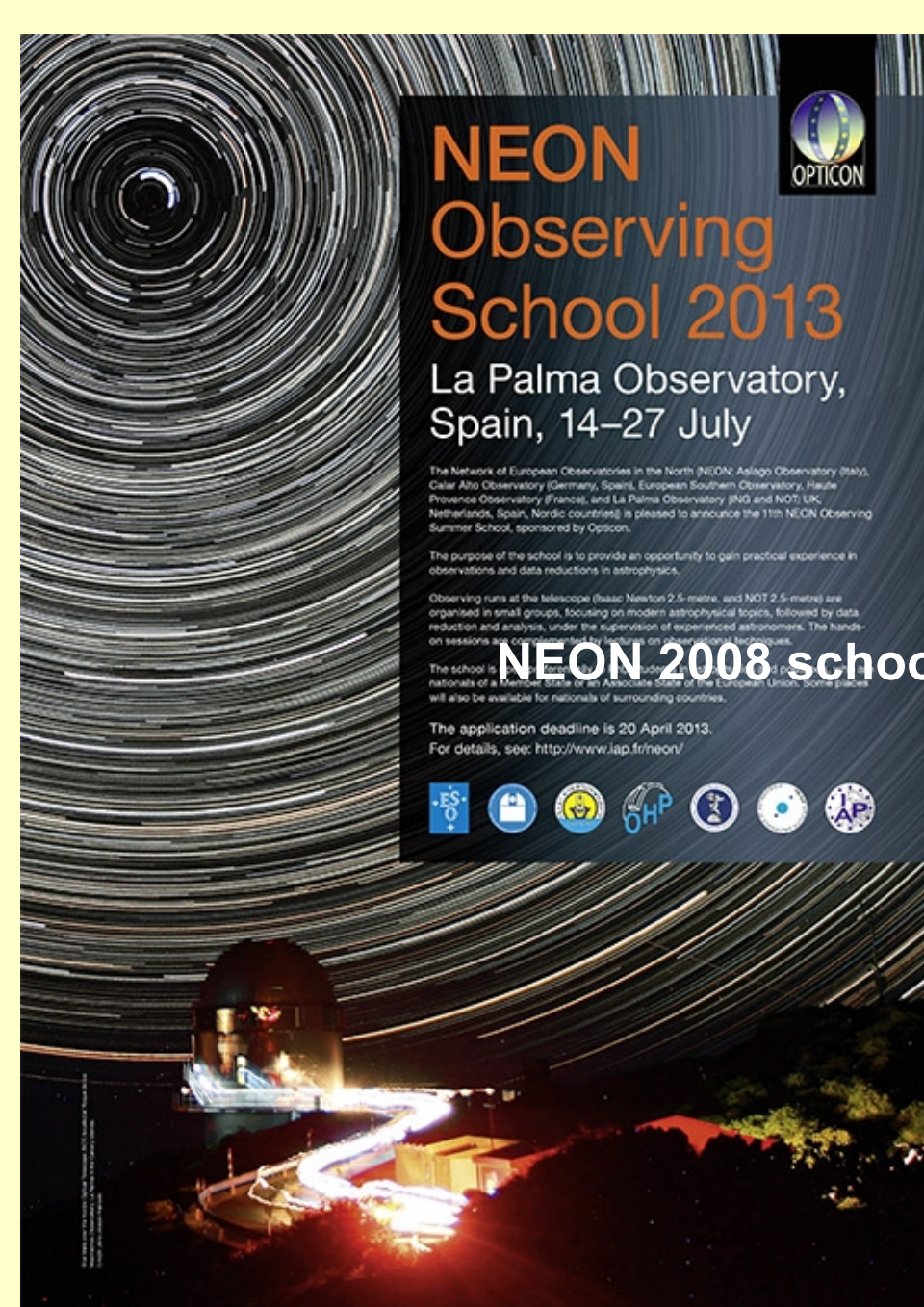


Other European student training schemes

ING has hosted few training workshops such as the NEON observing schools sponsored by OPTICON (in 2008 and 2013).

We also support training of European students as part of under-grad or post-graduate courses in the form of visits to INT and WHT telescopes or INT allocated runs.

The ING also welcomes good students from partner or new institutions interested in the INT instrument upgrade.



ING encourages good students from all countries, and in particular the ING partner countries institutions, to participate in the ING studentship program.

To apply, each March visit the ING website or ask details via email: <http://www.ing.iac.es/astronomy/science/studentship.html>