Astronomical and Astrophysical Transactions (*AApTr*), 2016, Vol. 29, Issue 3, pp. 389–396,
ISSN 1055-6796, Photocopying permitted by license only, ©Cambridge Scientific Publishers

Isaac Newton Institute of Chile: First twenty years of its Moscow Branch

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Received 15 September, 2015

In 1992, the Isaac Newton Institute of Chile established its Moscow Branch, the first of the now existing 15 branches in 9 countries of the Eastern Europe and Eurasia. I present a brief review of the Moscow Branch activity in the field of globular cluster studies, extragalactic astronomy, and other branches of astrophysics.

Keywords: Globular clusters: general – Galaxies: general – History and philosophy of astronomy

In summer of 1992, the Chilean astronomer, architect, businessman Gonzalo Alcaino, founder and Director of the Isaac Newton Institute (INI) of Chile, visited Moscow. It was not his first visit to the city: in 1973, he visited my teacher Prof. B.V. Kukarkin, with whom G. Alcaino shared keen interest in globular star clusters (both scientists compiled and published catalogs of our Galaxy's globular clusters: Kukarkin 1974, Alcaino 1975); I was present at their friendly discussions. The visit of 1992 had, however, a special purpose: G. Alcaino suggested to establish a branch of the Isaac Newton Institute in Moscow.

The Isaac Newton Institute (INI) of Chile was founded by Gonzalo Alcaino in 1978. INI pursues two major goals, formulated by its founder: offering scientists an opportunity to be published in the most prestigious scholarly journals worldwide and improving motivation to pursue science in the countries with insufficient funding for scientific activities. Now the name of the Institute is "Isaac Newton Institute of Chile in Eastern Europe and Eurasia" (Fig. 1). The INI founder, Gonzalo Alcaino, supported excellent international relations of his institute, with contacts with the most outstanding scientists of our time (Figs 2 and 3).

Directors of the two major astronomical institutes of Moscow, Sternberg Astronomical Institute of Lomonosov Moscow University (Prof. A.M. Cherepashchuk) and

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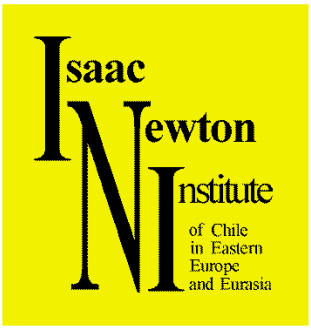


Figure 1 The logo of the Isaac Newton Institute.

Institute of Astronomy of Russian Academy of Sciences (Prof. A.A. Boyarchuk) readily agreed to participate in the project of establishing the INI Moscow branch (actually, the first one in Europe), and a corresponding agreement was signed by the three Directors. Soon, the INI headquarters in Santiago were visited by A.A. Boyarchuk and the President of the Russian Academy of Sciences of that time, Prof. Yu.S. Osipov (Fig. 4).

G. Alcaino invited me to become the resident director of the INI Moscow Branch, and I gratefully accepted this invitation. I was fascinated with the prospect of continuing my studies of globular star clusters and expanding them to the southern sky. Especially of interest for me were attempts to determine relative ages of globular clusters, in connection with the so-called "second-parameter problem": according to our ideas (Mironov and Samus 1974), the main second-parameter candidate was cluster age. Besides galactic globular clusters, the INI work opened prospects of studying star clusters in the Magellanic Clouds.

By that time, the Chilean INI headquarters accumulated a large amount of photographic and CCD observations of globular star clusters from major Chilean telescopes. Large-size photographic plates taken with different filters, old-fashioned magnetic tapes and newer tape cassettes with CCD observations were brought to Moscow.

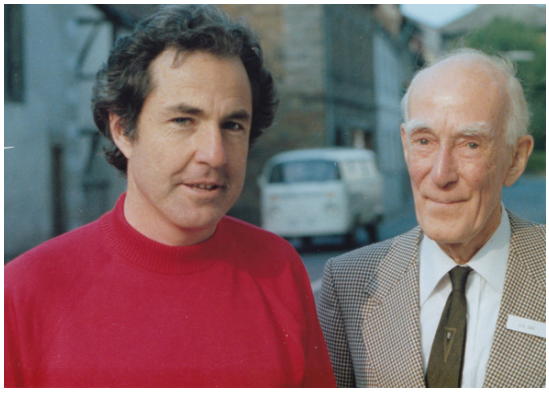


Figure 2 Gonzalo Alcaino with the famous Dutch astronomer Jan Oort (1900–1992).



Figure 3 Allan Sandage (1926–2010) with the INI Director.

At Sternberg Institute, an AMD-1 measuring machine (produced by Izyum factory, Ukraine; Fig. 5) made it possible to digitize the plates (scanning them with a spatial resolution of 20 μm), and software developed by one of Russian participants of the project (M. Pavlov) made it possible to digitize the plates, calibrate them using existing standards, determine magnitudes and color indices, plot color-magnitude diagrams and determine cluster ages. For CCD photometry, specialized DASHA software, based on DAOPHOT II (Stetson 1991) and providing excellent possibilities for calibrating magnitudes and cross-identifying objects, was developed by our team members (Smirnov and Ipatov 1995). We also made use of our knowledge and interest in the field of variable stars in globular clusters.



Figure 4 Yu.S. Osipov, President of the Russian Academy of Sciences, and Prof. A.A. Boyarchuk (1931–2015) visiting the INI.



Figure 5 Gonzalo Alcaino (with the author and S.A. Lamzin, former deputy director of Sternberg Institute) inspects the AMD-1 machine.

The first publications of the Moscow INI branch, in the field of photographic as well as CCD photometry, appeared more than 20 years ago, in 1994–1995. The very first one (Kravtsov et al. 1994) dealt with new variable stars in the globular cluster M22. Only a small number of papers were published in the Russia's leading refereed journals; the main goal was to publish in the world-leading journals with high impact factors. Our photographic studies of the southern globular cluster NGC 4833 were presented in Samus et al. (1995a); soon appeared the first paper from the CCD



Figure 6 G. Alcaino with the first team of the Moscow Branch in the yard of the Institute of Astronomy, Moscow (1993).



Figure 7 Prof. Olga Sil'chenko.

photometry program (Samus et al. 1995b). After several papers in the Astronomy and Astrophysics Supplement Series, we started publications in the Astronomical Journal with the CCD study of the star cluster Kron 3 in the Small Magellanic Cloud (Alcaino et al. 1996).

In total, the globular-cluster period of the INI Moscow branch activity resulted in 22 publications (N. Samus participated in all of them; V. Kravtsov, in 20 papers; A. Ipatov, in 14; O. Smirnov, in 13; M. Pavlov, in 7 papers). I would like to specially mention the role of the late Alexander P. Ipatov (1949–2007) in our CCD program. One more INI paper by N. Samus, in co-authorship with L.N. Berdnikov, will be included in Berdnikov's INI statistics below.

Gonzalo Alcaino visited Russia (Moscow and St. Petersburg) again in the difficult days of political turmoil of autumn, 1993 (Fig. 6). This was the first step to creating new branches of the INI in Russia (St. Petersburg and Pushchino). They did appear several years later. In Moscow, G. Alcaino found new prospective members of the INI branch, who are now determining the activity of this unit.

Starting with 1998, new people joined the Moscow branch with their own directions of research. One of the most productive members of the Moscow branch during this new period of its activity is Prof. Olga Sil'chenko (Fig. 7). Between her first INI publication (Sil'chenko 1998) and the most recent one (Katkov et al. 2015), she published a total of 32 papers. Her research covers different branches of extragalactic astronomy, special interest being paid to galaxies with decoupled nuclei. Prof. Leonid Berdnikov joined the team in 2001 (Turner et al. 2001). He is the most active observer in the world in the field of photometry of Cepheids. His INI score is 23 papers. In 2010, Dr. Vasily Gvaramadze became a member of the INI Moscow branch (Gvaramadze et al. 2010). He studies galactic and extragalactic supergiants, luminous blue variables. Among his INI papers, it is absolutely necessary to mention a publication in the top-prestige "Nature" journal (Mackey et al. 2014). Very quickly, he became the leader of the Moscow Branch, with 34 papers as of November, 2015 (7 of these papers have L. Berdnikov among co-authors and have already been included in Berdnikov's statistics; the most recent paper in Gvaramadze's record, Gvaramadze et al. 2015, is also the most recent one for Berdnikov).

The total number of scientific papers produced by the INI Moscow branch by now is 104. All of them were published in the world's top journals.

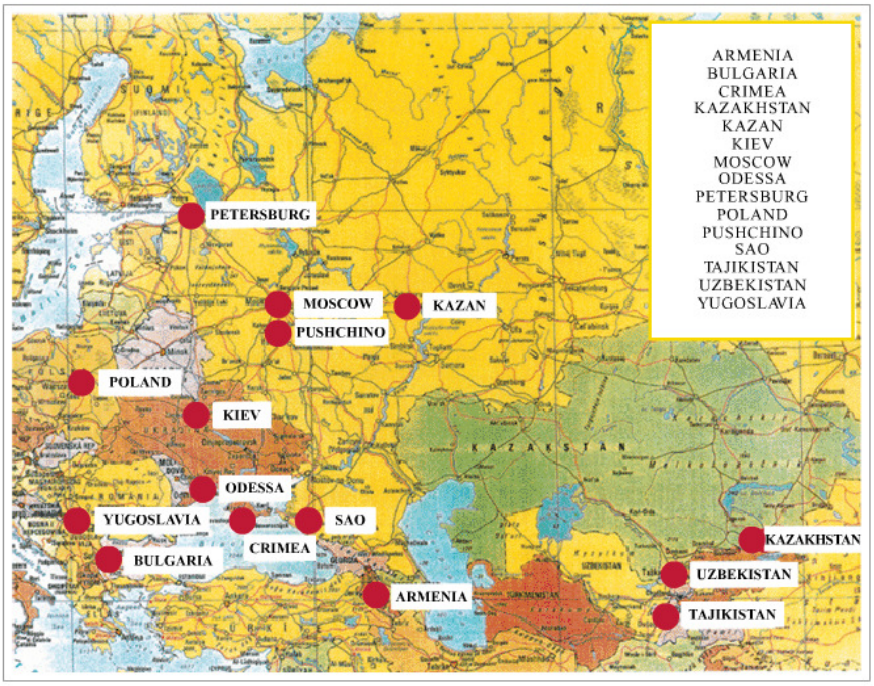


Figure 8 Branches of the Isaac Newton Institute in Eurasia ("branch in Yugoslavia" is the traditional name of the Belgrade branch).

After the creation of the Moscow branch, INI was continuously expanding its activity in the former USSR and Eastern Europe. By now, it has 15 branches in 9 countries (six of them being countries of the former USSR; Fig. 8). Information about the overall INI activity can be found at the institute's web site (www.ini.cl). By now, the total number of papers published by east-European scientists affiliated with the INI (about 300 astronomers are engaged) approaches 900, which shows this quite unique and extraordinary endeavor to be a complete international success. Recently, several branches have published review papers describing their many-year activity (Alcaino and Mickaelian 2015; Kovtyukh 2015).

The experience of the INI clearly shows that private initiative by people personally interested in a particular branch of basic research can provide huge benefits to scientific community. I am and will always remain grateful to Dr. Gonzalo Alcaino for his role in my life and lives of my colleagues.

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