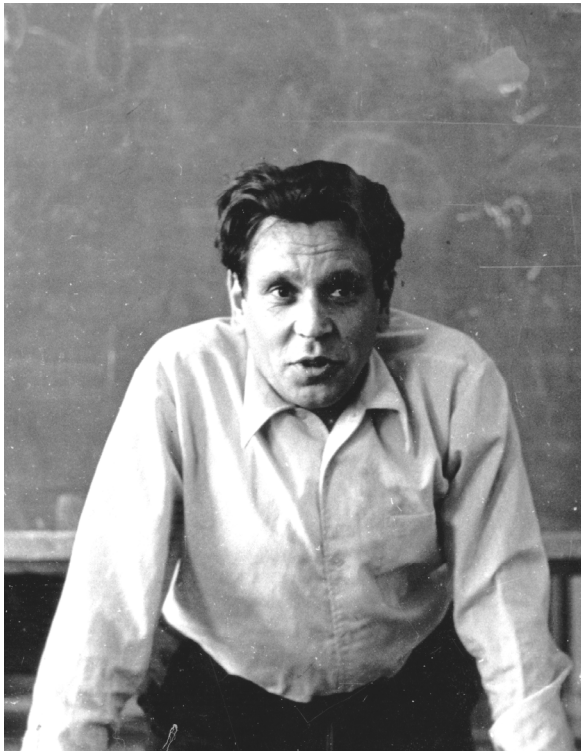


IN COMMEMORATION OF THE 75TH BIRTHDAY ANNIVERSARY OF NIKOLAY S. KOMAROV

T.V.Mishenina, A.V.Dragunova

Astronomical Observatory of the Mechnikov Odessa National University



Nikolay Sergeyevich Komarov (16.06.1938–03.08.2003) was born in Sestrotorsk town in Leningrad region (USSR) in the family of a naval officer. After the World War II his family moved to Odessa. In 1955, Nikolay graduated from a high school and entered the Department of Mathematics of the Faculty of Mathematical and Physical Sciences at Odessa State University. The launch of the first artificial Earth's satellite aroused his interest in outer space, and he transferred to the Department of Physics of the faculty to specialise in astronomy. During 1955-1960, Nikolay Komarov was a leader among other students in Odessa as he had the largest number of artificial satellite observations. He was very enthusiastic about spectroscopy as far back as he was a student and made the meteor spectra the subject of his graduation Master's paper.

On having graduated from the University in 1960, Nikolay was employed at the Odessa Astronomical Observa-

tory and spent the first year of employment at the observational station in Mayaki village, being engaged in the visual observations of variable stars using the 19" telescope installed outdoors and not equipped with the clock drive for automatic tracking. In 1961, Nikolay Komarov entered the PhD programme, and Vladimir Tsesevich was assigned to be his academic advisor.

The future academic career of Nikolay Komarov, including selection of the focus area and line of his research, was significantly influenced by Sergey V. Rublyov and Ivan M. Kopylov. Sergey Rublyov who was the Chief of the Mayaki Observational Station, sent Komarov on mission to the Crimean Astrophysical Observatory (CrAO) to collect the observational material for his PhD thesis; and there Komarov got into the spectral observations with the 50" reflector. And I. Kopylov provoked the interest in the spectroscopic studies and phenomenon of the so-called 'metallic' (metal-line) stars. The PhD thesis "Kinematic and Morphological Properties of Stars with Enhanced Metal Lines" was successfully defended by N. Komarov in 1968. The spectrograms of 29 stars, obtained with the quartz spectrograph of the 122 cm reflector at the CrAO of the Academy of Sciences of the USSR, provided by I. Kopylov, were used in that PhD study; besides, within the framework of that study the stellar atmosphere models were built within the spectral range A0-F0 near the Main sequence under the local thermodynamic equilibrium (LTE), plane-parallel, radiation and hydrodynamic equilibrium approximations. The temperature distribution was determined under the grey approximation and using the Chandrasekhar method of averaging the intensity by direction; the absorption by metals was assigned as an opacity source. Later on the temperature distribution was corrected for the non-greyness of the atmosphere by the Swihart method. The model grid at different ratios of hydrogen relative to metals for T_{eff} 9000, 8000, 7000, 6000K and $\log g = 4, 3$ was computed by the Universal Electronic Digital Machine (URAL-2) of the Computation Centre of Odessa State University. The calculation of the star envelope, i.e. that part of it where it is possible to neglect the energy distribution, was performed; the catalogue of 380 metal-line stars was compiled; and a set of very weighty conclusions on the parameters, kinematic properties and

velocities of axial rotation of the metal-line stars were made.

After the PhD thesis defence Nikolay was appointed as the Chief of the Department of Astrophysics, which was the largest unit of the observatory at that time. During the years of follow-up the observatory underwent a series of changes, and after reorganisation Nikolay headed first the Section and later the Department of Spectroscopy, and during the last years of his work he was the Chief of the Department of Physics of Stars and Galaxies, which was the new largest unit of the observatory with consolidated Departments of Variable Stars and Astrospectroscopy.

Having a good grounding in mathematics, being a natural leader with keen mind, Nikolay always demonstrated the intuitive ability to perceive an interesting and promising line of research. Along with V. A. Pozigun, he pioneered the near-infrared star observations and investigations in the Soviet Union. The electrospectrophotometer, designed by Komarov, had been in operation at the Mayaki Observational Station from 1966 to 1970; and then, being attached to the 17" telescope, it was removed to Turkmenistan and installed in Vannovskiy village where acted till 1975. On the initiative and with the participation of Nikolay Komarov several more electronic photometers and electrospectrophotometers, covering a wide range of wavelengths, were constructed and put into operation (more details can be found in the authors' paper in *Odessa Astronomical Publications*, vol. 21, 2008, pp. 5–8). Different instruments, designed to record spectra and measure brightness of stars were developed under scientific supervision of N. Komarov, namely broadband amplifiers, recorders and memory devices, computer communication and control interfaces. All activities concerned with the automation of the observation processes were initiated, developed and controlled with the direct involvement of N. Komarov. The equipment was installed in different regions of the former USSR at sites with good astronomical climate conditions, such as in Turkmenistan (Mt. Dushak-Erekdag), in Georgia (Abastumani village), Armenia (Pass Bezymyanny), in the vicinity of Mt. Elbrus in the North Caucasus (Terskol Peak), in the Sayan Mountains (Mondy village) and in the Pamir Mountains (Murgab village).

Tens of young Odessa astronomers got systematic training in the high-mountain research expeditions. Nikolay himself participated not only in the observations at the stations, established by him, but also in observations of solar eclipses and zodiacal light (in Chukotka, Kamchatka, Sakhalin in 1981, as well as in the Hindu Kush). The obtained observations were included into several published catalogues of spectral energy distribution and broadband photometric data. The observatory's computerization was launched on the initiative of N. Komarov and at the ex-

pense of the funds raised from executing of commercial contracts he agreed upon.

The spectroscopic studies by Nikolay Komarov were not limited to the determination of the spectral energy distribution. The stellar fundamental parameter study, spectroscopic analysis of stellar atmospheres, determination of the chemical composition and calculations of the synthetic spectra were carried out in the Department of Astrospectroscopy since the late 1960s. The formation of the study group "Stellar Atmospheres" by N. Komarov together with N.A. Sahibullin, A. Sapar and Y. Straume was good first start to coordinate the activities on the high-dispersion spectra observation, interpretation and simulation of the stellar atmospheres in the USSR. Then Komarov initiated the coordinated efforts of the researchers of the stellar atmospheres and evolution theories; and in 2002, he arranged International conference "Chemical and Dynamic Evolution of Stars and Galaxies" within the framework of the study group "Stellar Atmospheres". The established group has been continuing its activities, having an international status nowadays. Nikolay Komarov was also one of the organisers of the All-Union Workshop on the Spectrophotometric and Photometric Standards.

In 1989, N. Komarov defended the ScD thesis "Atmospheric Structure of Giant Stars" and soon after became a full professor. He published 160 scientific studies, 3 monographs and many catalogues and drafted 56 reports on the agreed-upon topics.

In his monograph "Cold Giant Stars" that was dedicated to Sergey Rublyov, Nikolay Komarov summarized the results obtained by himself and those received under the supervision of Rublyov. The following activities were performed under the supervision of Nikolay Komarov: the non-LTE spectral analysis, determination of the metallicity gradient of the galactic disc by calibrations of $[Fe/H]$ – CN for the open clusters, determination of abundances of isotopes and the n-capture elements, investigation of formation of dust grains in the upper atmospheres of giants, etc.

Nikolay Komarov paid great attention to the educational, scientific and organisational activities. There were more than ten PhD theses written and defended under his supervision.

Nikolay Komarov headed a large team that mainly consisted of young people and he helped many of them in finding their calling in science; he also fostered improved scientific communications of Odessa Astronomical Observatory with different astronomical and other organisations and enhanced the observatory facilities. He was a really committed person with multifaced interests and got others involved by his enthusiasm. Eternal memory of him shall live in the hearts of his like-minded colleagues and associates and shall be embedded in the environment of his home observatory. And what is the most important, his cause lives on!