

В ней он изложил теорию, отражающую работу телевизионной передающей трубки. В 1940 году появился под его редакцией капитальный труд «Основы телевидения».

В 1944 году ученый с группой специалистов разработал и предложил впервые стандарт телевизионного вещания на 625 строк, принятый в дальнейшем в СССР и большинстве стран мира.

В 1949 году последовало предложение использовать для телевизионного вещания Луну в качестве пассивного ретранслятора. После запуска в нашей стране 4 октября 1957 года первого искусственного спутника Земли им была высказана идея создания космической связи с помощью спутников для телевизионной передачи на большие расстояния.

В 1964–1970 годах ученый исследовал вопросы преобразования телевизионных стандартов и разработал способ передачи звукового сопровождения программ в полосе частот видеосигнала. Система уплотнения видео- и звуковых сигналов, предложенная им, теперь составляет основу знаний в сфере телевидения.

В 1951 году Катаеву была присвоена ученая степень доктора технических наук, чуть позже присуждено звание профессора, а в 1968 году он стал заслуженным деятелем науки и техники РСФСР, был награжден орденом и медалями СССР.

До 1987 года профессор работал на кафедре телевидения (с основания до 1944 года и с 1946 по 1977 год заведующим) в Московском электротехническом институте связи, ныне Московский технологический университет связи и информатики (МТУСИ). Он явился создателем отечественной школы телевидения и подготовил более десяти докторов и около 50 кандидатов технических наук.

Умер ученый в возрасте 87 лет 10 июля 1991 года.

Инженеры, работающие с генераторами телевизионных разверток, и поныне пользуются теорией, созданной Катаевым. Его методы уплотнения видео- и звуковых сигналов и замедленного телевидения составляют основу знаний в телевизионном мире.

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RUSSIAN BAST IN TELEVISION LINE

ON THE OCCASION OF CENTENARY OF THE BIRTH OF S. I. KATAEV

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ABSTRACT

In the history of the invention of television cathode ray tubes and creation of a system of public television, his name stands next to the name of another Russian scientist and designer V. K. Zvorykin. Competition of their priorities, patents, typical for transient era of scientific and technological revolution, has unlikely highlighted all key points almost fairly. Biographical details, provided by the author, give more coherent picture of this outstanding representative of Russian science.

ENGLISH SUMMARY

Founder of the national school of television, D. Sc. (Tech.), professor Semyon Isidorovich Kataev was born on the 9th of February (January 27 old style) 1904 in the suburb Elionka of Starodubsky County in Chernigov province (now Starodubsky municipal district of the Bryansk region) in the family of philistine, dissenter.

In 1909, Kataev family moved to the village Sulin (now Krasny Sulin in the Rostov-on-Don region), and then – to the village of Grand-Ducal (now Proletarsk in the Rostov region). Child attended the parochial school and then thanks to his father went to the fourth grade of a non- classical secondary school, but studied there for only six months. After the death of his mother, he helped the merchant,

and then, in the Soviet period (1918–1920 years) served in the Company's consumers shop where his father worked as a night watchman.

The young man, who was fond of reading, was appointed head of cultural enlightenment at the Komsomol organization in his Cossack village. From its secretary (head) he received the recommendation to study in Rostov-on-Don. He was offered to enter main department of military schools in Moscow, and then he was sent on two-year military and economic courses. At the end of 1920 due to the dissolution of the cadet school he was demobilized and became supernumerary in Moscow Komsomol committee, got a place in a hostel, engaged in self-education, became interested in electrical engineering and attended evening training courses intended to prepare attendees to enter higher education institution, on the basis of which was soon created a worker's faculty (general education school in the USSR for the youth who have no secondary education). Upon written recommendation of komsomol he was enrolled at worker's faculty.

In 1922 Kataev entered Electrotechnical Faculty of the Moscow Higher Technical School (now Bauman Technical University). From the first months of study, he organized and led electrotechnical study group, invented amplifier of all frequencies and made some other innovations.

From 1926–1927 the student seriously started to go for television. He studied the literature on this topic and guided independent research as an intern during his internship at Union Electrotechnical Institute (VEI). Two years later he received a diploma in electrical engineering, began working in the VEI, where under the guidance of radiophysicist B. A. Vvedensky (member of the USSR Academy of Sciences from 1943) moved into the front ranks of the inventors in the field of television.

Kataev and Y.S Volkov, employee at VEI, on the 20th of September 1931 filed an application for an invention of reproducing television reception device, in which an increase in screen illumination was achieved using incandescent lamps. Glowing of each point of television image occurred throughout the frame, and the duration of light emission could be adjusted. Device worked due to controlling of the television signal by electric field, applied to the dielectric, ensuring the change of polarization. USSR Inventor's Certificate for invention number 32005 was the progenitor of modern TVs using the matrix liquid crystal elements, the functioning of which is based on the change in the angle of polarization of light by an electric field.

On September 24, 1931 Kataev applied for invention of transmitting vacuum cathode-ray tube with a mosaic target based on the effect of the accumulation of electrical charges. Mosaic photocathode was micatex, one side of which was dotted with million photosensitive elements – e. g., silver grains coated with cesium. They were tiny cathodes; each of them created a capacitor in conjunction with a very close metallic coating, separated by mica, applied to the plate on the opposite side. So, it was dielectric with two conducting plates. The result was a formation of a tank through which the accumulation of charges occurred.

So, an important step on the way to a modern electronic system of high-definition television was made.

USSR Inventor's Certificate number 29865 in the name of S.I Kataev was registered on April 30, 1933. It outstripped a similar device (prototype of the modern iconoscope) proposed in the U.S. by an immigrant from Russia V. K. Zvorykin. He filed his application 50 days later and received a U.S. patent number 202110907 only on November 26, 1935.

In the autumn of 1931 Kataev and his team of VEI employees created a device and carried out the transfer of the first image using its tube with analyzing on a few dozen lines. But Zvorykin and his colleagues in the U.S. have introduced innovation faster. In 1933–1935 they created the world's first broadcast television system.

In 1932 Kataev led the development of vacuum receiving tube with magnetic focusing of the

electron beam. Prior to that, receiving tubes with gas focusing were used. Works also continued to improve iconoscope. Transfer of «electronic image» with conductive photocathode on insulator proposed by the scientist helped to sharply raise the sensitivity of iconoscope. For this invention Kataev obtained a USSR Inventor's Certificate of September 30, 1933 with a priority date of February 20, 1932.

Also in 1934–1938, he suggested, developed and implemented a system for transmitting a clear TV picture through narrowband channel (slow-scan television) and transfer with the extended frame.

In 1936 Kataev was sent to the United States to share experiences and considering the purchase of equipment for domestic factories producing electronic devices. Kataev met Zvorykin and presented him with his book «Cathode-ray television picture tubes», just published in Moscow. In this book, he outlined the theory, indicating the operation of a television camera tube. In 1940 appeared, under his editorship, his major work «Fundamentals of Television».

In 1944, a scientist with a group of experts developed and offered for the first time a broadcasting standard of 625 lines further adopted in the Soviet Union.

In 1949 appeared a proposal to use for broadcasting the Moon as a passive retransmission unit. After launching in our country October 4, 1957 the first Sputnik, he put forward the idea of creating space communications satellite for television transmission over long distances.

In the years 1964–1970 scientist investigated the conversion of television standards and developed a method of transmitting audio programs in the band video. The sealing system of video and audio signals, which he proposed, is now the basis of knowledge in the field of television.

In 1951 Kataev obtained the degree of Doctor of Technical Sciences, and later was awarded the title of professor, and in 1968 he became the Honored Scientist of the RSFSR, was awarded orders and medals of the USSR.

Till 1987 the professor worked at the Television department (from its foundation until 1944 and from 1946 to 1977 as its head) in Moscow Electrotechnical Institute of Communications, which is now Moscow Technical University of Communications and Informatics (MTUCI). He was the founder of the national school of television and trained more than a dozen D. Sc. and about 50 Ph.D.

Scientist died at age 87 July 10, 1991.

Engineers, working with generators of television scanning, still use the theory, created by Kataev. His methods of sealing the video and audio signals and of delayed television continue to constitute basis of knowledge in the world of television.

Keywords: television, cathode ray tube, invention, priority, history.

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