

## Principles of Sonoristic Technique in the Electronic Music for the ANS Synthesizer by Stanislav Kreichi and Other Russian Composers of the 1960s and 1970s

### Annotation

The advent of electronic music in Russia came with the appearance of the ANS synthesizer – virtually the first electronic instrument in the Soviet Union. It was conceived of by musicologist Evgeny Alexandrovich Murzin in 1938 and manufactured in 1964 (a preliminary working model was built in 1958). The name of the instrument was contrived from the initials of Alexander Nikolayevich Scriabin, a composer whom Murzin was especially fond of, and whose ideas of microtonality he incorporated into the construction of the instrument. The ANS synthesizer is constructed in such a way that there are plates of glass covered with mastic. Music is composed on the instrument by the composer scraping off bits of mastic from the glass plate and then processing the latter through an electric construction with light, so whichever portions of the plates that have the mastic scraped off convey the sound of the respective pitches and registers. By this seemingly simple means of sound production countless variants of sound become available to composers. At the Moscow Electronic Studio, hosted at the Scriabin Museum in the late 1960s and early 1970s, many composers have experimented with the ANS synthesizer. The famous avant-garde Russian composers, Alfred Schnittke, Edison Denisov and Sofia Gubaidulina have each written a piece for the instrument in the 1960s and 1970s. The most prominent composer for the instrument, however, is Stanislav Kreichi, who saved the instrument twice from destruction and has tended to it ever since, up to the present day. He continued writing for the instrument, since the Electronic Studio was closed down in 1975, and has achieved remarkable results in his diverse and contrasting compositions. His music explores the various possibilities of sonoristic technique, derived from the unusual means of sound production of the ANS synthesizer and contains rich, innovative textures, from the most experimental ones to conscious stylizations of and derivations from past styles. Many of his compositions present a fertile ground for analysis and demonstration in terms of their formal structure, expressive means, depictive, theatrical possibilities and imaginative sonoristic textures.

**Keywords:** ANS synthesizer, electronic music, Russian composers, Moscow Electronic Studio, Evgeny Murzin, Alexander Nemtin, Stanislav Kreichi.

The advent of electronic music in Russia came with the appearance of the ANS synthesizer – virtually the first electronic instrument in the Soviet Union. It was conceived of by scientist and engineer Evgeny A. Murzin (1914–1970) in 1938 and manufactured in 1964 (a preliminary working model of the instrument was built in 1958). The name of the instrument was contrived from the initials of Alexander N. Scriabin, a composer whom Murzin was especially fond of, and whose ideas on microtonality he incorporated into the construction of the instrument. The ANS synthesizer was built in such a way that there are plates of glass covered with mastic. Music is composed on the instrument by the composer scraping off bits of mastic from the glass plate and then processing the latter through an electric contrivance with light, so whichever portions of the plates that have the mastic scraped off convey the sounds of the respective pitches and registers. By this seemingly simple means of sound production countless variants of sound become available to composers. Thereby it is possible to create purely sonoristic compositions with varying volumes of sounds. It is also possible to fixate exact pitches and, thereby, to write tonal or atonal compositions, in which pitch plays a greater role than musical texture. As a result, there have even been arrangements of works by classical composers, including Bach and Tchaikovsky, for the synthesizer. Due to the instrument's capacities for microtonal intervals, it is possible to incorporate into musical compositions various microtonal scales, up to 72 notes to the octave. The pitch-wise possibilities of the synthesizer also make it possible to create overtones on it. As a result, a composer working on the instrument may create certain concrete instrumental textures by means of applying overtone sonorities. Thus, the possibility is open to imitate musical instruments, such as violins, flutes, clarinets, etc. Finally, the instrument has also been used for sampling human speech and creating actual sounds of words “pronounced” by the ANS synthesizer, and not by a human being. The latter occurrence made it possible to use the instrument for lingual experiments at Moscow University's Linguistics Department in the final decades of the 20th century. Thus, the ANS synthesizer has been a unique instrument in that it has been able to combine the functions of composition and performance.

The preliminary working model of the synthesizer contained 576 pure tones covering the range of 42–10800 hertz, 8 octaves, 72 tones per octave, four optical discs, each disc containing 144 tracks containing 144 tracks (covering a span of 2 octaves) with diameters of 120–130 millimeters, 0.31 millimeters width and oscillation speed of respectively 12, 3, 3/4 and 3/16 rotations per second. The ultimate model of the ANS synthesizer,



built in 1964, contained 720 pure tones covering the range of 21 hertz – 21.6 kilohertz (covering 10 octaves), with five optical discs with oscillation speed of respectively 24, 6, 4/4, 6/16 and 6/64 rotations per second.

The constructor of the instrument, Evgeny Murzin was born in Samara in 1914 and died in Moscow in 1970. He studied at the Samara Technical School for Construction and Moscow Institute for Engineers of Communal Construction and subsequently worked as a military engineer dealing with technical devices for military anti-aircraft defense. At the same time, he was a devotee of music, particularly of the works of Scriabin. In 1938 he proposed to the Moscow Conservatory the idea of creating a synthesizer able to produce musical sounds. He was inspired by the musical experiments of “graphic sounds” undertaken by music theorists Arseny Avraamov and Evgeny Sholpo in the 1920s and 1930s. Murzin was only able to accomplish his task of constructing the instrument in 1958 – this was the preliminary experimental working model, made out of wood, built during the course of ten years in the composer’s apartment. In 1959 it was placed in the Scriabin Museum in Moscow, after which Murzin began to invite young composers to come and experiment with the instrument and compose pieces for it. Among the first composers to work with the instrument were Nikolai Nikolsky, Piotr Meshchaninov, Andrei Volkonsky (virtually the first composer in the Soviet Union to write twelve-tone music, who wrote “Musica Stricta” for piano and “Suite of Mirrors” for soprano and chamber ensemble in 1960), Alexander Nemtin (who completed Scriabin’s mystical composition, the “Prefatory Action”), Stanislav Kreichi, Oleg Buloshkin and Shandor Kallosh. The ultimate version of the ANS synthesizer was constructed in 1964. Following that, the young Russian composers who later achieved celebrity also started coming to the Scriabin Museum to work with the synthesizer. They were Alfred Schnittke, Edison Denisov, Sofia Gubaidulina and Eduard Artemyev. The Moscow Studio for Electronic Music was formally created in 1966 within the Scriabin Museum, where the ANS synthesizer stood, even though informally it existed ever since the working model of the instrument was brought to the museum in 1959. The electronic studio became not only a place where composers came to work with the ANS synthesizer and create music on it, but also a creative setting where intellectuals and devotees of innovative musical trends, as well as philosophical, mystical and esoteric directions discouraged by the Soviet regime, came to socialize with the composers and to discuss important aesthetical issues. Two LP records of electronic pieces were released by the Melodiya record firm (under the auspices of which the Moscow Electronic Studio existed). The first record was released in 1973 and included works by Nemtin, Kreichi, Artemiev and others. The release of the second record was delayed until 1987 due to the fact that it included pieces by Schnittke, Denisov and Gubaidulina, whose music was discouraged from being performed and promoted in the 1960s and 1970s. The contents of both LP records were produced in CD format in the late 1990s by the Electroshock CD label.

After Murzin died in 1970, there began a campaign by the Soviet authorities against the Moscow Electronic Studio, which was seen by them as a haven for “decadent,” “bourgeois” and “reactionary” artistic influences. After various repeated attempts, the government bureaucrats finally succeeded in closing the studio in 1975. The ANS synthesizer was saved from demolition through the efforts of Stanislav Kreichi, who turned

to the Linguistic Department of Moscow University and suggested that the instrument be moved to one of the buildings of the university to be used for linguistic experiments, namely, for construction of human speech. Kreichi himself found employment by the Linguistic Department of Moscow University, and his responsibilities included tending to the instrument. The composer continued his own musical experiments on the synthesizer, composing music for it, and he invited other composers to come and work on the instrument, albeit on a much less overt scale than it was possible to do during the existence of the Moscow Electronic Studio. In the late 1980s and early 1990s, when the last of the Soviet prohibitions against avant-garde and experimental art were lifted, Kreichi was able to invite composers in a much more overt capacity into the basement of the Department of Journalism of Moscow University, where the instrument stood. The next dramatic episode in the history of the ANS synthesizer took place in the summer of 2005, when the authorities of Moscow University decided to clear the basement of various redundant objects, the synthesizer among them in order to use the space for more practical purposes of earning money. Kreichi received a phone call, where he was asked to remove the instrument from the basement, which he did with the help of Andrei Smirnov, the head of the electronic studio at the Moscow Conservatory. Together, they took the instrument apart and brought it to the Moscow Conservatory, where it stood in the electronic studio for a few months; a few months later, Yulia Murzina, the scientist's daughter arranged to have the instrument transferred to the Glinka Museum of Musical Culture where it is presently located as part of the permanent exhibition.

In the late 1960s and early 1970s the Moscow Electronic Studio was a popular venue for composers to come and experiment with the ANS synthesizer. The most famous Russian composers of the avant-garde trend in Russian music, Alfred Schnittke, Edison Denisov and Sofia Gubaidulina each wrote one piece for the instrument. Schnittke's piece is called "The Stream" and it is built entirely on various stratifications of overtones of the pitch C, as a result of which a most interesting, constructively intricate and emotionally saturating composition was formed out of these sonoristic strata. Edison Denisov composed a piece called "Bird Songs." He incorporated into it actual bird calls recorded by biologist Boris Veprintsev, which the composer recreated on the mastic plated score of the ANS synthesizer. Denisov's "Bird Songs" exists in two versions, the first one being solely for the ANS synthesizer, while the second contains a part for piano (likewise incorporating bird calls), which may also be played on virtually any other instrument. The piece does indeed bring in the atmosphere of a large assortment of birds, including owls, making their calls in the forest, along with sounds of rustling trees in the winds and other illustrative sonorities, some of them being purely abstract synthesizer reverberations. Gubaidulina's "Vivende – Non Vivende" incorporates the recording of a singing soprano along with sounds on the ANS synthesizer. The interplay and cross-relation of the sounds of the living soprano and the "non-living" sounds of the synthesizer constitute the basic conception of the piece. The latter include sustained and altered reverberating sonorities, as well as short percussive effects. The recordings of the vocal singing range from unaltered to heavily distorted sounds, the latter bringing in a touch of the grotesque. Eduard Artemiev, who later made his name with his music for movies, wrote two pieces for the ANS synthesizer, "Mosaic" and "12 Perspectives of Sound". "Mosaic" presents a sound collage of mysterious, reverberating synthesizer textures with a very small quantity of grotesquely distorted vocal effects. In "12 Perspectives of Sound" twelve different sonic textures are developed on the instrument and presented successively, ranging from static and mysterious to dynamic and harsh ones, the latter especially endowing the composition with a vibrant and dramatic mood. There is an assortment of pictorial associations present in the music, as could be inferred from the sonorities, some of which resemble bird calls, airplane noises and gusts of wind. Artemiev subsequently incorporated the ANS synthesizer in music for movies, most notably, for Andrei Tarkovsky's famous film "Solaris," released in 1972. Artemiev and Kreichi also jointly wrote music for the short motion picture "Cosmos" ["Outer Space"], a fragment of which was released on one of the LP records with music for the ANS synthesizer. Oleg Buloshkin wrote a short piece called "Sacrament," in which sonoristic electronic effects were combined with a diatonic melodic line and reverberating percussive effects, resembling some of the present-day trends in ambient music. Shandor Kallos's "Northern Tale" is a five-minute dramatically intensive piece making use of a broad range of sonic textures, ranging from static to extremely dynamic and from mellow to harsh ones. The succession of these textures and moods of the piece create a vibrant dramaturgy, suggesting a narrative of a story – the latter is greatly enhanced by the descriptive title of the piece.

Alexander Nemtin wrote a number of pieces for the ANS synthesizer, only two of which were released as an LP record and, subsequently, on as a CD – "Tears" and an arrangement of Bach's Chorale Prelude in C major. "Tears" is basically a transcription of Bach's short choral piece with the same name, set to a poem by Walt Whitman. The composer was able to use the sounds of the instrument in such a way that the piece

is not perceived in the least as an arrangement of a choral work, but as a true electronic piece, in which the pitch-related diatonic harmonic progressions and intricate melodic writing blends very well with non-pitch textural sonic effects, the latter endowing the piece with a cosmic feel. The arrangement of Bach's Chorale Prelude demonstrates a sound texture very close to that of the organ, and yet possessing individual features of the sound of an electronic synthesizer as well. Nemtin's other pieces not released in the LP and CD are "Voice" and the Suite Forecasts. "Voice" is based on an arrangement for the ANS synthesizer of a movement of the composer's "Concerto for Organ" (for solo organ), titled "Aria." The composer incorporated into the work a recording of a solo soprano singing the melodic line of the "Aria," with the ANS recreating the other voices of the organ piece in an original manner, taking full advantage of the sonoristic capacities of the instrument, so that it is perceived not in the least as an arrangement, but as an original composition, which it essentially is. The Suite Forecasts consists of four movements – a lengthy Fugue, lasting 11 minutes. It is a 12-voice fugue, written in the microtonal temperament of  $5/72$  of an octave ( $5/6$  of a semitone), in order to avoid the interval of the octave, presents virtuosic contrapuntal treatment of melodic lines and has a serious, philosophical mood. The other three movements – Gallop, Waltz and March – are much shorter in duration and possess humorous, theatrical characteristics, including low-keyed kitsch stylizations and parodies of the Soviet popular music of that time.

Stanislav Kreichi was one of the first composers to write for the ANS synthesizer, and he has continued to use the instrument for his compositions up to the present day. His music explores the various possibilities of sonoristic technique, derived from the unusual means of the synthesizer's sound production and contains rich, innovative textures, ranging from the most experimental ones to conscious stylizations of and derivations of historical and vernacular styles. Many of his compositions present fertile ground for analysis and demonstration of in terms of their formal structure, expressive means, depictive, theatrical possibilities and imaginative sonoristic textures. His earliest compositions were written in the 1960s at the Moscow Electronic Studio, and three of them – "Echoes of the East," "Intermezzo" and the music for the film "Cosmos" written jointly with Artemiev – were recorded on the first LP record. Unfortunately, the recordings of Kreich's other electronic compositions from that time have been lost, when the Electronic Studio was closed down in 1975.

"Echo of the East" lasts only two minutes and incorporates the exotic element of stylization of folk music of unspecified Asian countries along with modernist textural effects common to a synthesizer, at times bordering on popular music effects. In addition to the textural sound of the melodic line, resembling an unspecified folk instrument from an Asian country, the exotic ethnic element is also enhanced by using quarter-tone intervals, bringing in additional affinity with Asian folk music. The music from the film "Cosmos" is an extensive 12-minute composition featuring a set of successive episodes of sonoristic sound effects, including static, vibrating and glissando sonorities, all of them aspiring to explore the hidden dimension of sound and, thereby, quite appropriate for depicting outer space and the cosmic dimension. The music is greatly enhanced by certain elements of more recognizable diatonic harmonies and allusions to classical musical instruments, most notably, the organ. "Intermezzo" is another short two-minute-long piece with a lively, romantic emotional mood, composed entirely in a popular quasi-jazz style current in the Soviet Union in the 1960s, the sound textures greatly emulating the sounds of a jazz orchestra, including woodwind and brass instruments, drums and even a harmonica. It was composed for the occasion of an exhibition to which the ANS synthesizer was taken in the 1960s and was meant to demonstrate the possibility of electronic music of being accessible to mass audiences.

Kreichi continued composing electronic music after the closing of the Moscow Electronic Studio. In the late 1970s, 1980s and early 1990s he cooperated with the puppet theater Ognivo writing music for the ANS synthesizer for two theatrical productions "Ogon' nadezhdy" ("The Fire of Hope") and "Zavtra nachinayetsya vchera" ("Tomorrow Begins Yesterday") as well as a number of separate electronic numbers for puppet shows. Since 1992, he has been a member of the Society of Electronic Music, which forms a branch of the Moscow Composers' Union, and every year he has participated in the annual Moscow Autumn festival of contemporary music, where the Electronic Society has an annual concert, for which he writes a new piece. Thereby, starting with the early 1990s Kreichi has written a whole set of interesting and imaginative electronic compositions, most of which utilize the sonorities of the ANS synthesizer in one way or another, sometimes fully for an entire piece, and sometimes with added recordings of musical instruments, singing voices or living concrete sounds, but many of which make use of other, newer electronic or computer music programs. In recent times, he has been using pre-recorded samples of sounds of the ANS synthesizer, processed by modern computer

programs, sometimes sounding unaltered, and at other times sounding greatly transformed. Many of his compositions are inspired by certain literary, artistic or theatrical plots, thereby incorporating pictorial or theatrical elements to the music.

Some of Kreichi's compositions are made almost entirely of sounds of the ANS synthesizer with only a small amount of added sounds. A most noteworthy composition in this category is "ANSiana," which is composed entirely of the sounds of the ANS synthesizer. The first version of the piece was written in 2000, while the second version was completed in 2014. In the latter version, the samples of sounds of the ANS synthesizer are transformed in such a masterful manner that they are virtually unrecognizable, creating a most varied assortment of sounds, resembling both those of the most advanced computer music programs, as well as pre-recorded sounds of percussion or non-musical objects in the manner of *musique concrete*. Other works composed almost entirely of sounds of the ANS synthesizer include the triptych "Ocean" (with a small amount of added sounds of dolphin calls and drums), "The Head" (a work inspired by a painting of the same name by Russian artist Pavel Filonov), "The Birth of the Vertical" (with added sounds of tremolos on string instruments) and his two compositions inspired by Mikhail Bulgakov's novel "The Master and Margarita" – "Yeshua and Pilate" (with added recordings of human voices) and "The Bad Apartment" (with added recordings of playing on string instruments, as well as the composer's joint improvisations with Alexander Nemtin and Eduard Artemiev at the Scriabin Museum in the 1960s). Three compositions were written for pre-recorded ANS sounds and a live performer on the theremin – "Immersion," "Contemplation" and "Confession." The latter also has a version with pre-recorded vocalization, instead of the part for the live theremin player. In other compositions the ANS synthesizer sounds are used on an equal proportion with other live or computer-generated sonorities. These include "Rorshakh" (with added sounds of *musique concrete* recordings) and "The Four Seasons" (with recordings of sounds of nature). Some of Kreichi's electronic compositions do not employ the ANS synthesizer at all. They are "Voices and Movements," which consists entirely of *musique concrete* sounds, "Ellipsiada," a composition for a home-made instrument, the ovaloid (constructed by architect Vyacheslav Koleichuk), and "Music for Wood and Metal," which consists of the sounds of these two components.

Since the late 1980s and early 1990s, a number of composers of younger generations have come to compose music for the ANS synthesizer, attended by Stanislav Kreichi – first in the basement of the building of the Department of Journalism of Moscow University, then at the Moscow Conservatory's Electronic Studio and, finally, at the Glinka Museum. Many composers have tried out the synthesizer and written at least one composition for the instrument. Among these, mention must be made of the piece "ANSynopsis" by Anatoly Kiselyov, the chairman of the Association of Electronic Music, affiliated with the Moscow Composers' Union, "Obscurity" by Vladimir Komarov, "ANSonatina" by Valery Beluntsov, "Concordance," "Correspondence" and "Chorale" by the writer of these lines and "Illumination" for theremin and ANS synthesizer, as well as a number of other pieces by Olesya Rostovskaya, who is also an accomplished performer on the theremin.

The ANS synthesizer remains a noteworthy landmark of the legacy of contemporary Russian music, and electronic music, in particular. Having had an intriguing and dramatic history – having served as virtually the first electronic instrument in the Soviet Union on which some of the greatest late 20th century Russian composers wrote their musical pieces, having twice been in danger of being virtually destroyed, having been saved just in time by Stanislav Kreichi and, finally, having found a permanent home at Moscow's Glinka Museum of Musical Culture, the instrument has remained an important artifact of 20th century Russian music and a constant source of inspiration for younger composers. The legacy of electronic music composed for the ANS synthesizer by the older and younger generations of Russian composers has yet to be discovered and appreciated in full by connoisseurs of contemporary music around the world.

## Sonoristinės technikos principai Stanislavo Kreiči ir kitų XX a. 7 ir 8 dešimtmečių rusų kompozitorių elektroninėje muzikoje ANS sintezatoriui

### Santrauka

Elektroninės muzikos pradžia Rusijoje siejama su ANS sintezatoriaus atsiradimu – galima sakyti, pirmuoju Sovietų Sąjungoje pagamintu elektroniniu instrumentu. Jį 1938 m. sukūrė muzikologas (taip pat garso ir optikos inžinierius – *vert. past.*) Jevgenijus Aleksandrovičius Murzinas; pirmasis bandomasis modelis buvo sukonstruotas 1958 m., o gamyklinis modelis pasirodė 1964 m.

Instrumento pavadinime užšifruoti Aleksandro Nikolajevičiaus Skriabino inicialai. Šį kompozitorių J. Murzinas ypač mėgo ir vertino, o jo mikrotoninės muzikos idėjomis rėmėsi konstruodamas savo instrumentą. ANS sintezatoriaus konstrukcijos pagrindas yra mastika padengtos stiklo plokštelės. Kurdami muziką šiuo instrumentu, kompozitoriai išraižydavo savo kompozicijas stiklo plokštelėse, tam tikrose vietose nugremždavo mastikos sluoksnį, o vėliau optiškai skenuodavo tas raižytas plokšteles elektros įrenginiu, kuris atkurdavo atitinkamo aukščio ir registro garsus pagal plokštelėse išraižytas garso bangos formas. Tokiu iš pažiūros nesudėtingu būdu buvo galima išgauti nesuskaičiuojamą daugybę garsų, o kompozitoriams atsivėrė didžiuliai garsyno galimybių klodai.

Skriabino muziejuje įsikūrusioje Maskvos elektroninės muzikos studijoje XX a. 7 deš. pabaigoje ir 8 deš. pradžioje kurdami garsus ANS sintezatoriumi eksperimentavo daugelis žymių Rusijos avangardistų – Alfredas Schnittke, Edisonas Denisovas, Sofija Gubaidulina tuo laikotarpiu sukūrė bent po vieną elektroninę kompoziciją. Tačiau daugiausia kūrinių juo sukūrė Stanislavas Kreiči, kuris, be kita ko, dusyk išgelbėjo instrumentą nuo sunaikinimo, juo iki šiol žavisi ir kuria muziką. Jis nenustojė rašyti šiam instrumentui netgi tada, kai 1975 m. Maskvoje buvo uždaryta elektroninės muzikos studija, o vėlesniais metais savo įvairialypiuose ir kontrastinguose kūriniuose pasiekė ištisus įspūdingų rezultatų. S. Kreiči kūryboje tyrinėjamos įvairios sonoristinės technikos galimybės, kurias atvėrė neįprastas garso išgavimo ANS sintezatoriumi būdas; kūriniai išsiskiria sodriomis, inovatyviomis faktūromis – nuo eksperimentinių garsovaizdžių iki sąmoningų praėjusių epochų muzikos stilizacijų ir vedinių. Daugelis jo kompozicijų yra puiki medžiaga analizuoti ir iliustruoti įvairius reiškinius kalbant apie formos sandarą, išraiškos priemones, iliustratyvumą ir teatrališkumą bei vaizduotę žadinančias sonoristines faktūras.

**Reikšminiai žodžiai:** ANS sintezatorius, elektroninė muzika, rusų kompozitoriai, Maskvos elektroninės muzikos studija, Jevgenijus Murzinas, Aleksandras Nemtinis, Stanislavas Kreiči.