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Article

Timbral Experiments by Igor Pinkhasov and His Electronic Music



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Keywords: electroacoustic music, Igor Pinkhasov, electronic music, sound space, chronometric chart, timbre, timbres multifunctionality, intra-musical content, timbre analysis, compositional principles in music.

Abstract. Electroacoustic music has emerged as a significant realm of exploration for contemporary composers. Among them is the renowned Uzbekistani composer Igor Pinkhasov, who delves into this field alongside academic composition and film soundtracks. This article presents a study of the specific nuances of Pinkhasov's compositional approach, focusing on his album *Time Helix*, released in 2015 under the *Emu Bands* label.

The methodology for analyzing electroacoustic music varies depending on the composer's chosen sound material. Generally, such analysis is conducted by ear and often involves the creation of a chronometric chart. Given our particular interest in timbral aspects, timbres were of primary consideration in our analysis. Diverse compositions from Pinkhasov's album, including *Light of Sirius*, *The Power of Machines*, *Echoes of Samarkand*, and *Memories*, were analyzed. In each piece, timbre emerges as a crucial factor in shaping the musical narrative.

Pinkhasov's timbral dramaturgy draws upon multiple elements, including narrative, multiculturalism, spatiality, and structure. This underscores the multifunctionality of both acoustic and electronic timbres within his compositional framework. Timbral elements not only imbue Pinkhasov's music with specificity and depth but also evoke genre associations, such as jazz, traditional Uzbek music, and a broader Eastern aesthetic. Similar to orchestral instrumentation, timbres in Pinkhasov's electronic compositions establish virtual sonic spaces and define the structural and dramatic contours of his works.

Throughout our study, we experimented with a method for analyzing the timbre of electronic music, tailored to Pinkhasov's compositions. Moving forward, we aim to refine this method, particularly in compiling chronometric tables, to facilitate its broader application in analyzing similar electroacoustic works.

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Мақала

Игорь Пинхасовтың тембральды эксперименттері мен электронды музыкасы

Тірек сөздер: электроакустикалық музыка, Игорь Пинхасов, электронды музыка, дыбыс кеңістігі, хронометриялық сызба, тембр, тембрлердің көп функционалдығы, интрамузыкалық бағдарламалау, тембрлік талдау, музыкадағы композициялық принциптер.

Аңдатпа. Электроакустикалық музыка көптеген заманауи композиторлар үшін тәжірибенің негізгі салаларының біріне айналды. Өзбекстанның атақты композиторы Игорь Пинхасов осы жанрларда да, академиялық музыка жанрларында да жұмыс істейді, сонымен қатар фильмдерге саундтрек жазады. Мақалада 2015 жылы *Emu Bands* лейблының астында шыққан *Time Helix* альбомы мысалында оның композициялық ойлауының ерекшеліктерін зерттеу ұсынылған.

Электроакустикалық музыканы талдау әдістемесі композитордың нақты дыбыстық материалына байланысты. Бірақ жалпы алғанда, мұндай талдау есту қабілеті арқылы жүзеге асырылады және хронометриялық сызбаны құруды қамтиды. Мақала авторын әсіресе тембрлік аспекті қызықтырғандықтан, сызбаларда ең алдымен тембрлер ескерілді. Зерттеу барысында альбомдағы әртүрлі композициялар талданды: *Light of Sirius*, *The Power of Machines*, *Echoes of Samarkand* және *Memories*. Осы композициялардың барлығында тембр негізгі формалау факторларының бірі болып табылады.

И. Пинхасовтың шығармаларындағы тембрлік драматургия бірнеше факторларға негізделген: сюжеттік, көпмәдениеттілік, кеңістіктік және құрылым. Бұл оның композициялық ойлау принциптерінің бірі ретінде акустикалық және электронды тембрлердің көп функционалдығын ашады. Тембр құралдарымен мазмұнның ерекшелігіне, интрамузыкалық бағдарламалауға, сондай-ақ осымен байланысты жанрлық ассоциацияларға (джаз, дәстүрлі өзбек музыкасы және т. б.) қол жеткізіледі. Оркестрлік аспаптау сияқты композитордың электронды музыкасындағы тембрлер виртуалды кеңістікті құрайды, шығармалардың формасы мен ішкі драматургиясын анықтайды.

Зерттеу барысында электронды музыканың тембрлік талдау әдісі апробациядан өтті. Оның қолданылуы зерттелетін материалға бейімделген (И. Пинхасовтың музыкасы). Болашақта хронометриялық кестелерді құрастыру технологиясын жетілдіруге болады, бұл әдісті ұқсас сипаттағы электроакустикалық музыканы талдауда қолдануға мүмкіндік береді.

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Статья

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Тембральные эксперименты композитора Игоря Пинхасова и его электронная музыка

Ключевые слова: электроакустическая музыка, Игорь Пинхасов, электронная музыка, звуковое пространство, хронометрическая схема, тембр, полифункциональность тембров, интрамузыкальная программность, тембровый анализ, композиционные принципы в музыке.

Аннотация. Электроакустическая музыка стала одним из главных полей экспериментов для многих современных композиторов. Известный композитор Узбекистана Игорь Пинхасов работает как в этом жанре, так и в жанрах академической музыки, а также пишет саундтреки к фильмам. В статье представлено исследование специфики его композиционного мышления на примере альбома *Time Helix*, вышедшего в 2015 году под лейблом *Emu Bands*.

Методология анализа электроакустической музыки зависит от конкретного звукового материала, используемого композитором. Но в целом такой анализ выполняется на слух и включает создание хронометрической схемы. Поскольку автора статьи особенно интересовал тембровый аспект, в схемах учитывались в первую очередь именно тембры. В ходе исследования проанализированы разноплановые композиции из альбома: *Light of Sirius*, *The Power of Machines*, *Echoes of Samarkand* и *Memories*. Во всех этих композициях тембр выступает одним из главных факторов формообразования.

Тембровая драматургия в сочинениях И. Пинхасова базируется на нескольких факторах: сюжетности, поликультурности, пространственности и структуре. Отсюда проявляется полифункциональность акустических и электронных тембров как один из принципов его композиционного мышления. Тембровыми средствами достигается конкретность содержания, интрамузыкальная программность, а также связанные с ней жанровые ассоциации (джаз, традиционная узбекская музыка и др.). Подобно оркестровым инструментовкам, тембры в электронной музыке композитора формируют виртуальное пространство, определяют форму композиций и их внутреннюю драматургию.

В ходе исследования апробирован метод тембрового анализа электронной музыки. Его применение адаптировано к исследуемому материалу (музыке И. Пинхасова). В дальнейшем технология составления хронометрических таблиц может быть доработана, что обеспечит возможность использования метода в анализе электроакустической музыки аналогичного плана.

Igor Pinkhasov (b. 1959) is an original composer whose works amalgamate audacious compositional concepts with multicultural allusions. His oeuvre encompasses classical genres such as symphonies, sonatas, and cantatas, alongside experimental compositions that transcend genre boundaries (see Fig. 1). The genre designations of his works, as articulated by the composer himself, are indicative: *Symphony-dastan* (1984), *Poem-meditation for Cello and Piano* (1985), and *Dramatica, or Music for an Unmade Movie* for two violins, viola, cello, and piano (2019).

Pinkhasov's stylistic palette encompasses not only Western academicism but also pop, jazz, and rock. A significant influence on Igor Pinkhasov's style is traditional music, particularly Turkmen and Uzbek. With a keen understanding of the foundational principles of these musical traditions, the composer creatively intertwines temporal and pitch structures from various ethnic genres with contemporary compositional techniques. Among the areas of Pinkhasov's experimentation lies electroacoustic or, in other words, electronic music.

The realm of electronic music production has become familiar terrain for many composers, reshaping various aspects of compositional thinking through digitalization. This article focuses on Igor Pinkhasov's electroacoustic music as a manifestation of the creative endeavors of an Uzbek composer. The study delves into its compositional principles, which uniquely reflect tendencies towards metahistoricism and metaculturalism, encapsulating the cultural method of creativity¹.

The electronic music album *Igor Pinkhas: Time Helix*, released in 2015 by *Emu Bands*, showcases compositions spanning electronic music, art rock, progressive rock, and world music styles. Notably, the album's uniqueness lies in its fusion of live timbres from traditional Uzbek instruments with electronic elements. For Pinkhasov, artistic expression intertwines intimately with timbre. In electronic compositions, timbre serves as a primary means of musical expressiveness, offering vast avenues for creative exploration, including spectral composition, thematic development, attack, decay, etc. Timbre also assumes thematic and structural roles within musical dramaturgy. For Pinkhasov with his expertise in classical orchestration, acquired during his studies at the Moscow Conservatory under Professor N. P. Rakov, shaping the form and narrative arc of his compositions is connected with system-forming qualities of timbre.

Eduard Artemyev, one of the pioneers in this creative domain within the Eurasian sphere, emphasized the paramount importance of timbre in music production on his lectures at the Tchaikovsky Moscow State Conservatory. "From the vast sea of sounds, acoustic music chooses only those that are transmitted by everyday instruments (violin, flute, trumpet, etc.), but there are huge layers of sounds that academic music cannot use due to the fact that there are no instruments for them." (Artemyev).



Figure 1. Igor Pinkhasov. Photo from I. Pinkhasov's personal archive.

1 The definition first appeared in connection with the work of V. Tarnopolsky [Tsenova], but is applicable to the work of many modern composers.

Researchers in the field of electronic music agree that the creation of new sounds is the fundamental criterion that determines its idea (Fatyanova 107). Similarly, T. V. Komarova underscores the significance of creating new sounds and structures in academic electronic music, echoing the pioneering spirit epitomized by composers like Edgard Varèse, who once defined the new music as “the search and creation of new sounds and sound structures that have no analogues in traditional acoustic instruments and nature” (9).

The influence of orchestral thinking on composition technique in electronic music of Igor Pinkhasov is noteworthy. Orchestrating demands both talent and practice, skills that Pinkhasov adeptly applies in his compositions, elevating them to realms of genre significance. Studies on the correlation between melodic and timbral perception among composers further illuminate Pinkhasov's adept utilization of timbre as a means of self-expression across both acoustic and electronic domains. Researchers have studied the phenomenon of the connection between melodic and timbre perception of composers (McAdams, “Perception and Cognition of Musical Timbre”). Pinkhasov admits, that learning N. A. Rimsky-Korsakov's orchestrations led to an understanding of the “fairy tale” content in his music: he speaks to his listener through timbre. Orchestral works of A. N. Scriabin provide insights into his innovative approach to space and timbre manipulation, underscoring the profound connection between timbre and the auditory perception of musical space. Modern science confirms the direct connection of timbre with the real sound space of music and with the auditory sensations of its virtual space (Tikhomirova).

The methodological approach to electroacoustic music analysis remains as a subject to ongoing debate (Bossis 101). This study primarily focuses on the timbral-temporal organization of compositions, presenting analytical tables that offer insights into timbral dramaturgy and its role in composition.

The *Time Helix* album comprises eleven compositions, unified not only by thematic and dramaturgical coherence but also by a distinct national flavor evident in the choice of timbres. The instrumental palette includes acoustic timbres such as *tanbur*, *oud*, and *guitar*, combined with samples of *darbuka*, *jambeya*, *doira*, and *nay*.

Thematically, the compositions can be categorized into two groups:

- those evoking nature, human-technological interactions, and existential themes (*Time Helix*, *Light of Sirius*, *Theremin Vox*, *The Power of Machines*), and
- those exploring cultural heritage and human existence (*Asian Megapolis*, *Ghostly Trance*, *Echoes of Samarkand*, *Memories*, *Autumn Wanderer*, *Life Island*).

Analysis of compositions from the *Time Helix* album underscores the centrality of timbre, which continues to be the primary formative element. The interplay between live oud and vocoder with a chant on “ah-ah” and its alternation with sampled sounds of a violin, creates contrasts akin to traditional sonata forms. Adept use of the pentatonic scale by Pinkhasov in *Asian Megapolis* imparts an oriental flavor, enriching the musical narrative. Furthermore, the vibrancy of his compositions owes much to his manipulation of timbral nuances, a technique reminiscent of Edgard Varèse's notion of “sound simulacra” (Fatyanova 161–170).

Additionally, the character of movement conveyed through the alternation of timbres over time plays a leading role in the development of the musical ideas in compositions. As Asafiyev aptly stated, “Music is the art of intoned meaning” (344). Pinkhasov captured this movement and imbues it with meaning, endowing the semantic layer with temporality, as evidenced in Table 1 of the composition *Light of Sirius*.

Table 1. Scheme of the form and timbre dramaturgy of *Light of Sirius* (*oud* part performed by Toir Askar)

		violin sample		violin sample		violin sample		violin sample	
pad		pad			pad			pad	
		vocoder (chant "au")	vocoder (chant "au")	vocoder (chant "au") beat		vocoder (chant "au") beat			
		beat	beat						
shaker								shaker	
nay sample		nay sample			nay sample				
doira sample				doira sample					
beats									
fluctuating sound									
beat intro		breakdown		build-up	drop	middle break		second drop	outro beat
0.00	1.25	2.13	2.28	2.28	2.28	3.14	3.29	3.44	4.16



Eduard Artemyev identifies three sources of electronic music. He refers to the work of Claude Debussy, who, by expanding space, prompted contemplation on “what will happen next behind this” (Artemyev). In one of our previous studies, we proposed a table detailing the cinematic timbral techniques employed by French impressionist composers, linked with both real and virtual spatial properties of music (Ganikhanova 192).

They utilized timbre:

- to create coloristic effects, emphasizing musical colors over form;
- to convey types of movement (mechanical, biological, physiological, etc.);
- to establish a momentary contrast, achieved through contrapuntal layering and the use of “parallel editing” (Eisenstein 316);
- to evoke a sense of stasis and contemplation through repetitions of stable structures (melodic, harmonic, rhythmic), close-ups (simultaneous sound of several instruments or tutti) (Ganikhanova 190);
- to simulate visual effects like gleams, flashes, and illumination; in such instances, the intensity of sound is inversely proportional to density, with tonal and harmonic “flares” accentuated by deliberate organization of acoustic.

The *Power of Machines* is constructed upon the alternation of two tonally similar themes performed on the guitar, where rhythm delineates the figurative and emotional landscape of the composition. Here, the expressive, recurring two main themes become stable structures, imbuing the sound with weightiness. Contrapuntal layering of the shaker and Pad on the guitar timbre dilutes the dense sonic texture, culminating in an expansion of the acoustic space. The structural diagram of the piece is presented in [Table 2](#).

Table 2. The *Power of Machines*: diagram of form and timbre dramaturgy (guitar part performed by Socrates Migdalis)

<i>pad (mix of Guitar A and B themes)</i>				
guitar theme A	guitar theme B	until the final part, 2 themes alternate between each other, reaching a climax by the interval 3.30-3.48		free improvisation
shaker				
		surrounding Sound		
bass				
intro	breakdown	drop	second drop	outro
0.00	1.50	3.15	3.38	4.40

Working with space in the creative endeavors of 20th-century composers gives rise to the concept of a *textured background*. “The textured background orients us to some background, to some distance; we subconsciously construct this distance. Solo instruments and the background delineate the boundaries of this space; there is a transition from instrument to instrument, its distribution in space” (Artemyev). As an example, he cites the third part “Night” from “Scythian Suite” by Sergei Prokofiev and analyzes compositions by the Neo-Viennese, particularly the first and third pieces from op. 7 “4 Pieces for Violin and Piano” by Anton Webern. “In the first piece, the space is described in fragmentary phrases, where the piano covers a very large range and creates a sort of rhythmic space, and the violin stands within it” (Artemyev). Igor Pinkhasov employs a similar technique in the composition *Echoes of Samarkand*, as reflected in [Table 3](#).

In the table, it is evident that through the sonic space created by the timbres of the *tanbur* and vocoder, we are immersed in the archaic atmosphere of the ancient city. The meditateness of the unfolding melodic material is sustained by the *nay* part, which is abruptly interrupted by the rock sound of the guitars. These micro-level constructions of the composition form the virtual space of sounds. Such a psychoacoustic phenomenon aligns well with the words of Eduard Artemyev: “We see time and from it we build space subconsciously – this is discrete music <...>. By such means, an illusory new space is created. It doesn’t exist, of course, but it is built illusorily” (*Lectures*). Repetitions of stable structures are separated by pauses; the space conveyed through “hearing” pauses expands the temporal boundaries both in breadth and height, elevating

us into the realm of imaginary figurative content. Thus, the composer skillfully resolves the issue of the virtual space of electronic music, as indicated by Eduard Artemyev (Fatyanova 99–103).

Table 3. The *Echoes of Samarkand*: scheme of form and timbre dramaturgy (guitar part performed by Socrates Migdalís)

pad			pad			
guitar			guitar			
nay sample		nay sample	nay sample			
drum samples			drum samples			
shaker			shaker			
doira			doira			
vocoder (chanting "ah-ah")			vocoder (chanting "ah-ah")			
tanbur			tanbur			
bits						
fluctuating sound					cadence sound	
beat intro		breakdown	drop		second drop	outro beat
0.00		1.15	1.49	2.04	3.05	3.33 4.03

If in previous compositions, live timbres were combined with samples, then the ninth track of the album *Memories* serves as an example of working exclusively with synthetic sounds, through which "artificial space" is created. Edgard Varèse was a pioneer to experiment with "artificial space" in his scores. However, while Varèse attempts to influence the listener by increasing the level of reverberation (10), in *Memories*, voluminous sound arrays are created through sonorous layers.

We have previously published an analysis of this composition. During the analysis procedure, a part of the composition was excluded (see Table 4). The three-themed three-part composition with a dialogue between two themes in the outer parts and new material in the middle resembles the structure of a *sonata allegro*, although it is not fully one. The main theme is represented by the melody in the piano timbre, while the *tanbur* theme serves as the secondary one. The two themes here do not conflict but rather complement each other in terms of timbral relationship and dynamics, and the transformed main theme in the middle introduces the necessary contrast for dramaturgy.

Undoubtedly, electronic music introduces us to a composer with a new type of thinking, where the artist, by modeling his relationship with reality, creates a new world of sound images while preserving national identity. Priority is given to the management of acoustic space and its organization, where the created timbres depend on artistic tasks and the level of professional skill (see Fig. 2).

The timbral dramaturgy in compositions of Igor Pinkhasov is based on several factors: narrative, multiculturalism, spatiality, and structure. Hence arises the multifunctionality

Table 4. Analysis of the *Memories*: diagram of form and timbre dramaturgy

descending arpeggiato			descending arpeggiato				
transformed main theme		transformed main theme					
<i>tanbur</i> theme 2		<i>tanbur</i> theme 2				synthesized	
pad	pad			pad			
surround, flashing sounds	surround, flashing sounds			voluminous flashing sounds			
imitation of <i>nagora</i>							
bits							
synthesizer main theme		synthesizer main theme		synthesizer main theme		synthesizer main theme	
0.00	1.35	1.58	2.20	3.06	3.29	3.43	4.18 4.40

of acoustic and electronic timbres as one of the principles of his compositional thinking. Through timbral means, specificity of intra-musical content is achieved, as well as genre associations it provides (jazz, traditional Uzbek music, a generalized image of the East). Similar to orchestral instrumentation, timbres in his electronic music shape virtual space and determine the form of compositions and their internal dramaturgy.



Figure 2. Igor Pinkhasov at the piano. Photo from I. Pinkhasov's personal archive.

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