Proceedings of the EUROPEAN ACADEMY of Sciences & Arts PEASA

Proceedings of the European Academy of Sciences & Arts, Vol. 1, No 1, (2022), pp. 1-20

Open Access. Online

DOI: 10.5281/zenodo.7472189

Topics: COLLOQUIUM

Category: ARTS

POETICS OF HYPERTIMBRALISM IN MUSIC

Livia Teodorescu-Ciocanea

[1] National University of Music Bucharest, Composition Department, Faculty of composition, musicology and Musical Pedagogy, Ştirbei Vodă, nr. 33, Sector 1, 010102 Bucharest, Romania
[2] Monash University, The Sir Zelman Cowen School of Music and Performance, Clayton Campus, Wellington Road, Clayton, Victoria 3800, Australia

Received: 07/12/2022
Accepted: 21/12/2022

ABSTRACT

My presentation is an attempt to introduce and clarify an original concept which I called Hypertimbralism, that refers to music based on Hypertimbre as the foundation for musical composition. It points to either orchestral, chamber or solo instruments music which relies on unusual timbre involving polyspectral energy. In contemporary music, two factors led to the arousal of Timbre-based aesthetics: sound mass (very dense textures) and extended instrumental techniques. Hypertimbralism embraces already written music and at the same time opens imagination for new insights in this matter.
A poetics of hypertimbralism would provide a musicological background for composition based on an enhanced vocabulary of timbre and on a higher understanding of timbre perception.

KEYWORDS: poetics, hypertimbralism, hyperlinks, nanomusic, polyspectral energy, spectral listening, sonorism

1. INTRODUCTION

The three nouns in the title are each difficult to define, even more so in this unusual combination. Poetics will suggest Aristotle, hypertimbralism could recall other "hyper" words, like hyperspace or hypertext and music could be regarded as the highest metaphor of thinking. I will try to present and argue an aesthetic vision based on these bricks of thought.

The concept of poetics has multiple meanings: from a set of rules that underlies the creation of an artistic work (see Aristotle's *Poetics*) to the highest expression of human thought involving pure emotionality, that is poetry. Aristotle spoke of epic poetry, the poetry of tragedy, comedy, and the poetry of "playing the flute or harp".[1]

Aristotle also stated that life "presents" and art "represents", a kind of mirroring being involved in art (mimesis). We enjoy likeness when we could refer to the original. Aristotle adds that "we have a natural instinct for representation and for tune and rhythm". But, when no imitation is depicted by the receiver (not knowing the original), he/she will simply enjoy "technique or colour" or other such elements.

I emphasise the modernity and topicality of this last statement of Aristotle, which announced, in my opinion, the change brought by modernity: non-referentiality and concentration on the very elements of language. In music, starting with the twentieth century, some tendencies were to eliminate extramusical references, emotionality, narrativity and drama, revealing pure structure and processes, treating notes as pure sound objects (Guigue, 1997) organized in Pitch class sets (Rahn, 1980) and using timbre "per se" as the main factor in generating music.

2. LIMINALITY OF TIMBRE / HARMONY PERCEPTION

Timbre inspired multiple philosophies related to sound, to the relationship between sound and music itself, discussing the place and role of the composer in manipulating sound.

"For Scelsi, to compose was to «project images in the medium of sound» – as if images and sonic material pre-existed the musician." (Murail, 2005, p. 180).

"For Saariaho, a sound is not simply a sound, it has a color, shape, density, light." (Rosé, 2018, p. 2)

Timbre was initially emancipated in Impressionism by Debussy and Ravel by empowering complex harmonies to become harmonic colours. This is an example of Timbre as a product of Harmony which occurs in music of normal density level, whereas details such as melody, harmony, rhythm can be distinctively perceived.

Modern music brought the concept of sonic mass in music (Kostka, 2018), of conglomerates of sounds that prevent the details to be perceived. In the case of super dense structures, the liminal relationship between harmony and timbre (Hasegawa, 2019) is more obvious. Harmony becomes Timbre, or, more accurately, Hypertimbre, due to the complex harmonic and inharmonic composites that emerge in sound crowded mass. This happens both because of dense superimposition of pitches and of their partials. The aural system can no longer depict fundamental frequencies and shifts the perception towards resulting global timbre.

I called this switch phenomenon *apperceptive modulations,* in this case from the vertical harmonic perception to the overall timbre envelope (Teodorescu, 2003, 2004).

As Tristan Murail, the French spectralist composer observed, harmony and timbre, at the spectral level, are one and the same phenomenon (Murail, 1984).

3. DENSITY LEVELS IN MUSIC PERCEPTION

Here there are two examples of density levels generating different responses of perception: detail level and sound mass level ("detail zone" and "agglomeration zone" in Niculescu, 1980).

At a detail scale (Fig. 1), the aural system is able to perceive melodic lines, motivic transformations, harmonic processes, tonal center, rhythmic pulsations, individual or combination of timbres.

[1] Aristotle, *Poetics,* https://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0056%3Asection%3D1447a (accessed 7 December 2022)

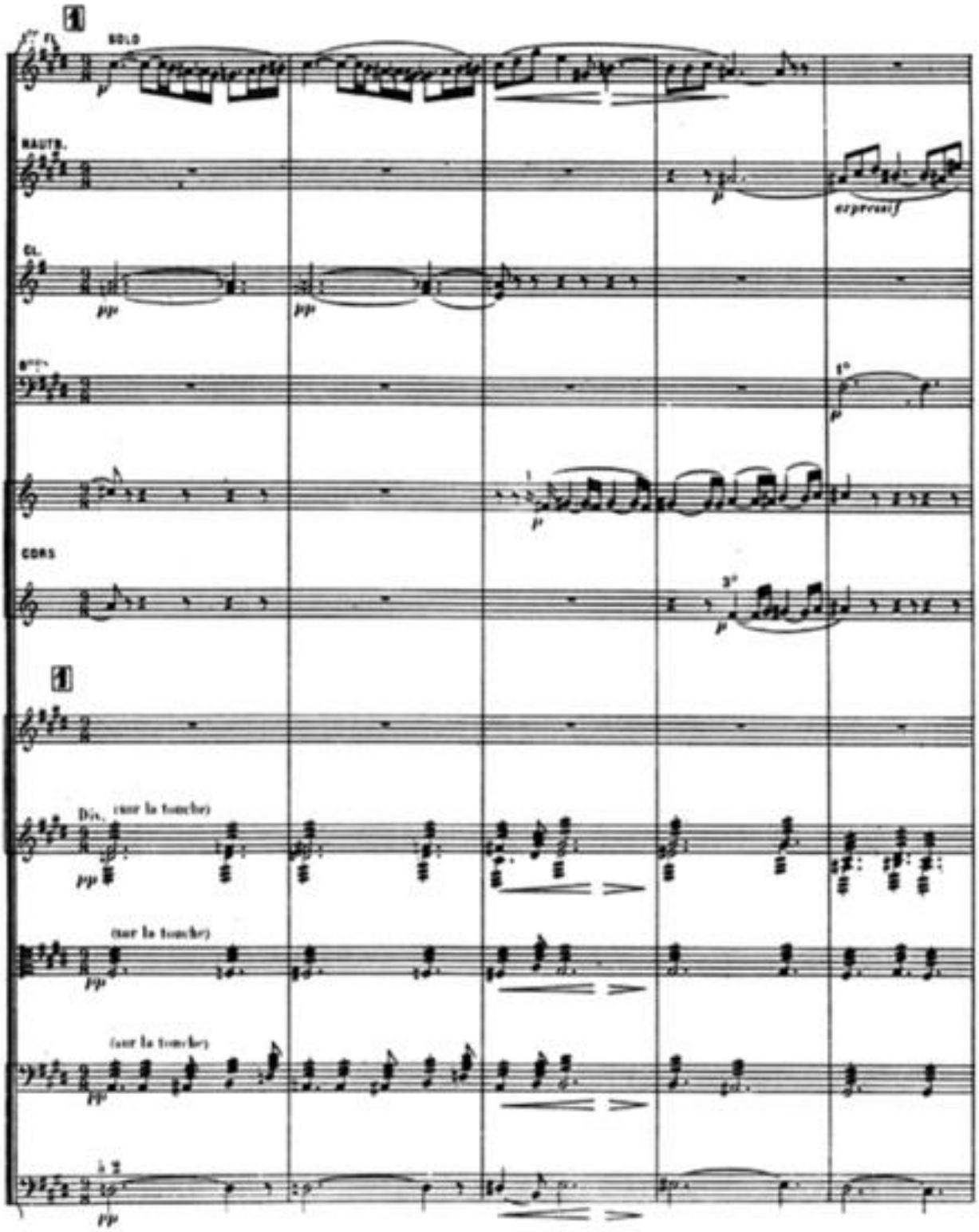


Figure 1. Detail level: Debussy, *Prélude à l'après midi d'un faune* (bars 11-15)

Sound Mass level relies on conglomerates of sounds which are no longer perceived individually or in distinct combinations but globally (Fig. 2).

I found Ligeti *Atmosphères* a relevant example for the sound mass level, whereas harmony perception is saturated and can no longer depict harmonic templates shifting towards overall Timbre perception.

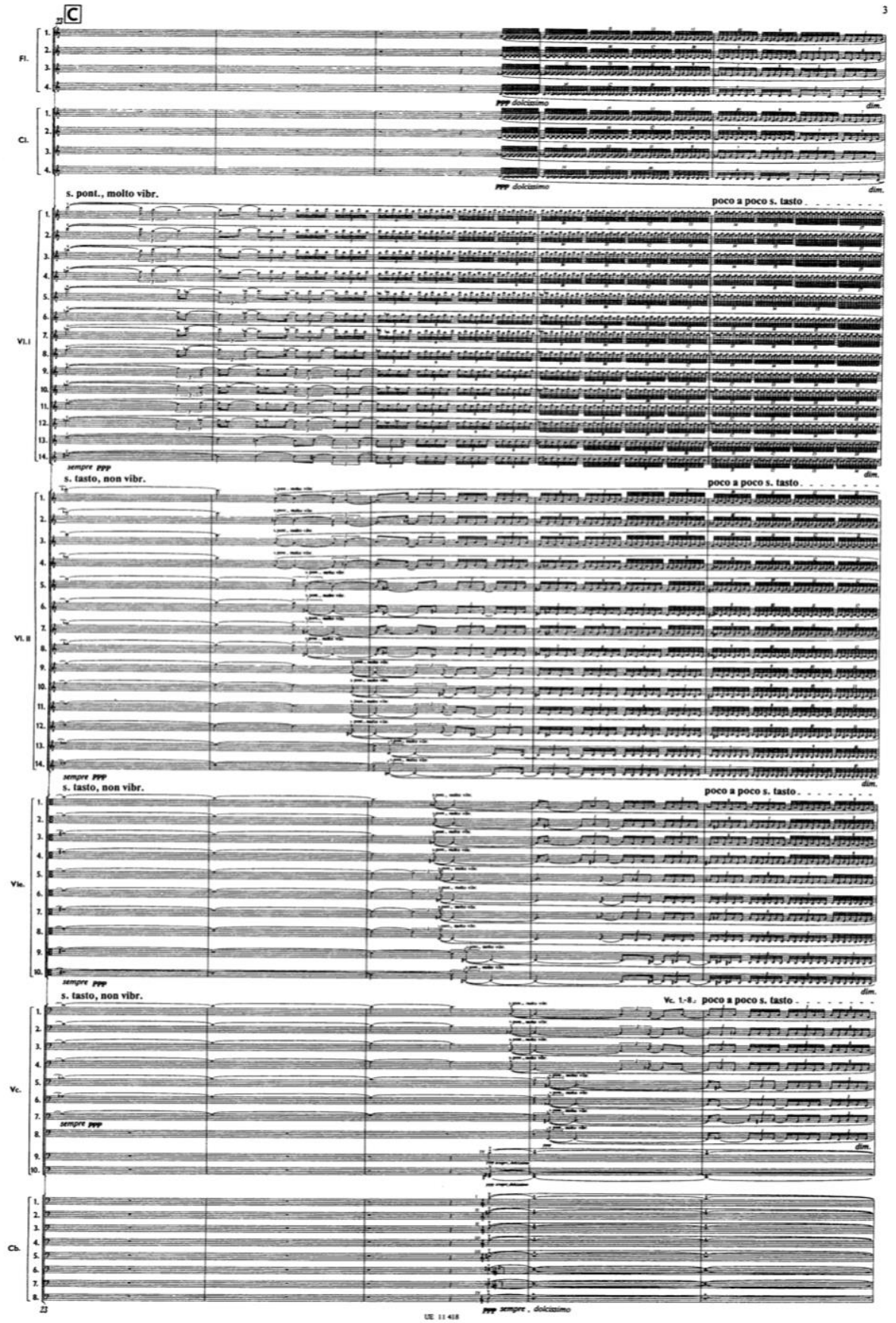


Figure 2. Sound mass level: Ligeti, *Atmosphères* (bars 23-27)

4. MIMESIS OF THE NATURAL SOUND SPECTRUM

In Aristotelian paradigm, the musical sound structure in its spectral intimacy is pure "nature" that presents itself and the musical art is called to "represent" it.

Mimesis of various aspects of the sound spectrum in the orchestral music was the foundation of three original aesthetics: Sonorism, Spectralism and Nano-music.

An important factor for modern composers's imagination was the evolution of the spectral analysis and of electronic manipulation of the sound.

Traditional representation of an audio waveform displays only the Amplitude envelope (Loudness) evolving in Time. Frequency and spectral information are not available.

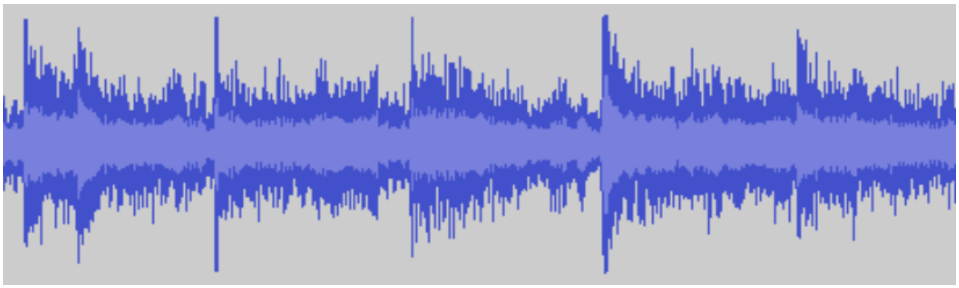


Figure 3. Traditional audio waveform representation (2D: Amplitude, Time)[2]

Modern computerized spectral analyses provide two-dimensional spectrograms with the third dimension represented by colours: Frequency and Time, with Amplitudes encoded in colours.

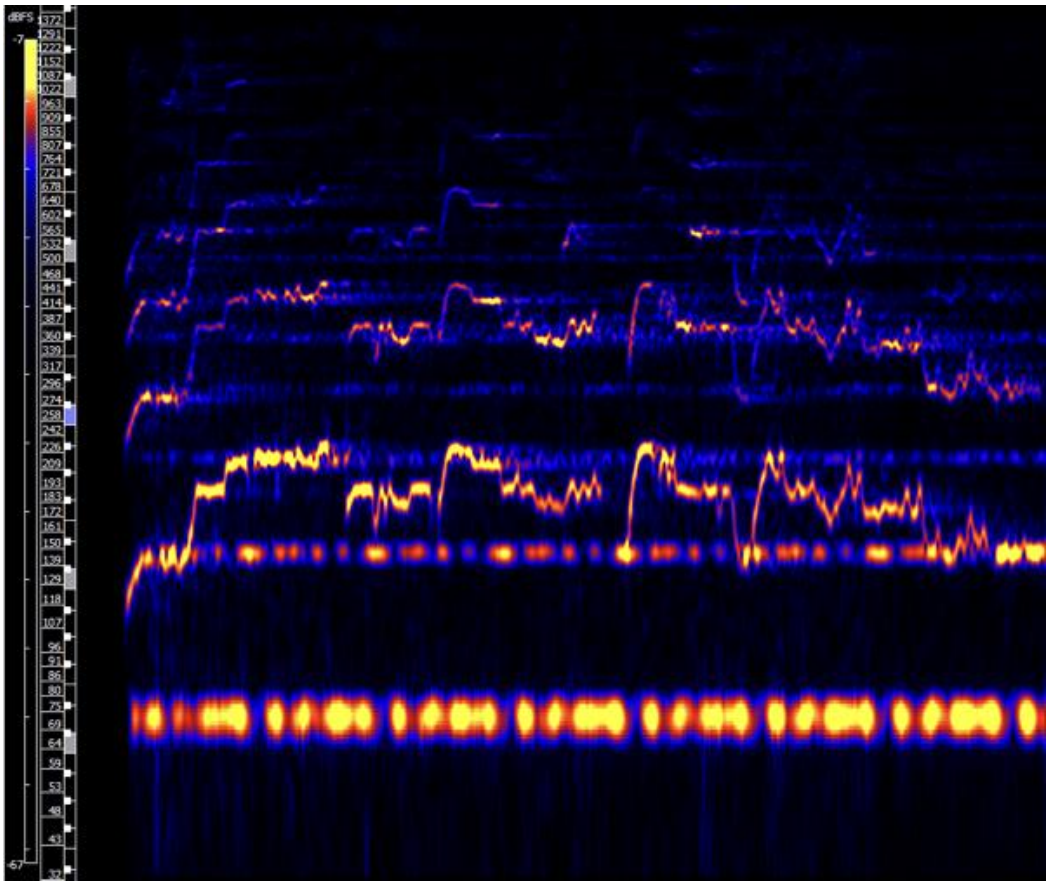


Figure 4. Modern representation of the spectrum (Sonic Visualizer application)
2D: Frequency (Hz) on the vertical axis and Time on the horizontal axis. Amplitude is encoded in colours.
Spectrogram of audio recording: Împărate ceresc - 2 voice Byzantine Chant, duration: 26 sec. (Teodorescu & Crotty, 2015)

[2] https://learn.leighcotnoir.com/2015/08/understanding-audio/ *(accessed 7 December 2022)*

Three-dimensional spectrograms include Frequency (Hz), Loudness (dB) and Time, available as pictures or animations in real time.

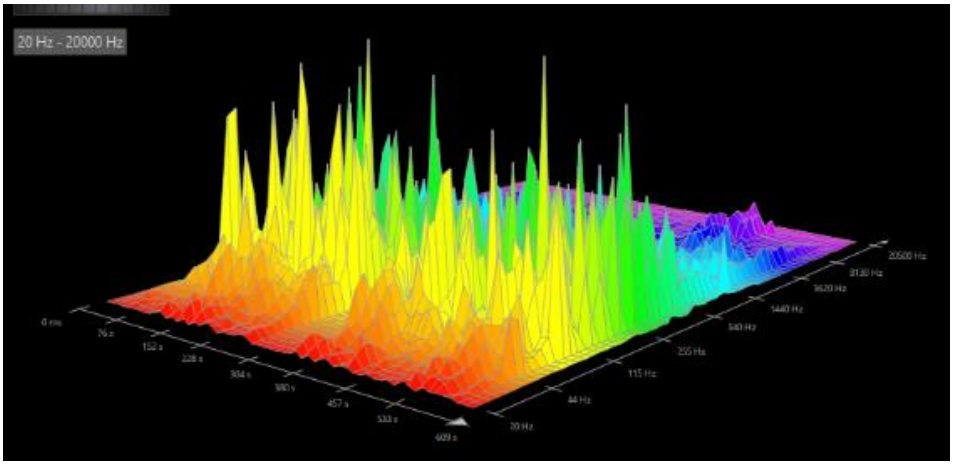


Figure 5. 3D Spectrogram example[3]

For 3D Animated Spectrograms see the link bellow providing spectrograms of sounds played by various instruments.[4]

Western classical music is based on a simplified model of the sound that takes into account primarily the harmonic spectrum and the steady state of vibrations. Contemporary music relies on a more complex model of sound, that includes also inharmonic spectrum[5] (Schneider, 2000), polyspectral aspects of the sound (Dubnov, 1995, online 2008) and noisy elements.

5. MIMETIC AESTHETICS

5.1. Sonorism. Mimesis of electronic manipulation of the sound spectrum

Polish Sonorism (Rappoport, 1983) focused on "purely sonorous values as the main means of expression and thus as a structural element of composition" as stated by Józef Chomiński,[6] the theorist of Sonorism (Lindstedt, 2018). Penderecky adopted this approach in several of his famous works written in the first decade of his carrier including *De natura sonoris 1*(1966), *De natura sonoris 2* (1971) or *Polymorphia* (1961). In these compositions, he mirrored and creatively transferred in the orchestral writing various processes used in the electronic manipulation of the sound such as ring modulation, additive synthesis, chorus effect or distorsion.

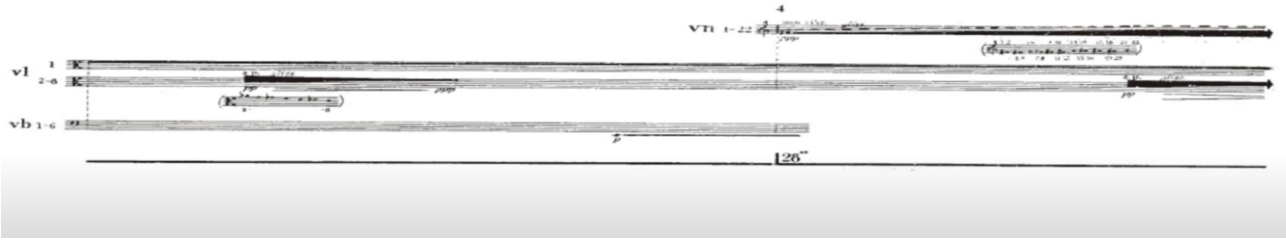


Figure 6. Krzsysztof Penderecki: *De natura sonoris 2* (bars 3-4). Sonorism example

[3] https://steinberg.help/wavelab_elements/v9.5/en/wavelab/topics/audio_analysis/3d_frequency_analysis_c.html *(accessed 7 December 2022)*

[4] https://musiclab.chromeexperiments.com/spectrogram/ *(accessed 7 December 2022)*

[5] *Inharmonic spectrum contains frequencies which are non-integer multiples of the fundamental frequency.*

[6] http://musicinmovement.eu/glossary/sonoristics-sonorism *(accessed 7 December 2022)*

5.2. *Spectralism. Mimesis of the composition of timbre*

French Spectralism is another example of mimetic aesthetics (Rose, 1996). The philosophy of Spectralism is to dynamically recreate the harmonic and inharmonic spectra of certain timbres in the realm of the orchestral instruments, using processes like stretching or compressing of the spectra to produce variation to the normal template of the overtones (Hasegatwa, 2009).

It is originally based on the mimesis of the composition of timbres (overtones) obtained by means of spectral analysis. As a consequence, it is Timbre that generates the structure of the piece. Timbre acts metaphorically as foundation for the macrostructure of the music evolving in an enlarged time/space (Grisey, 1987, 1991). It developed simultaneously in France and Romania. In France: Gérard Grisey, Tristan Murail, Horatio Radulescu, Michael Levinas, Hugues Dufourt and in Romania Corneliu Cezar, Octavian Nemescu and Iancu Dumitrescu.

In the orchestral work called *Partiels* (1975), the third piece from the cycle *Les espaces Acoustiques,* Gérard Grisey derives his music from the spectrogram of a low E2 on a trombone, orchestrating its overtones (Fig. 7).

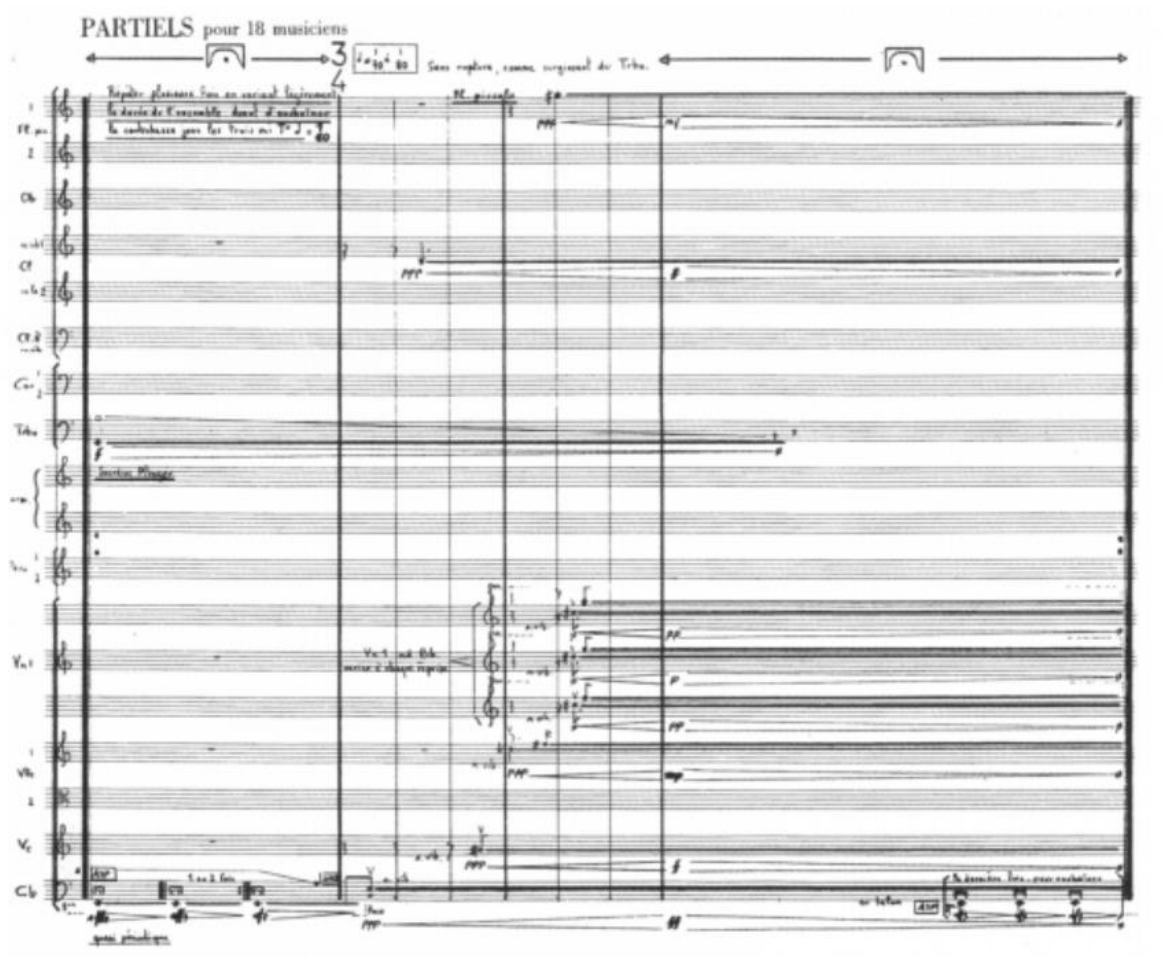


Figure 7. Gérard Grisey: *Partiels* (bars 1-4). Spectralism example

5.3. *Nanomusic. Mimesis of the sound envelope phases*

The third mimetic aesthetics focuses on the sound envelope phases.

Nanomusic is a term that I introduced for music that creatively reproduces and modulates the spectro-morphological elements of the sound in the realm of acoustic instruments. Spectro-morphology of sound delineates three phases while a sound is produced, no matter the medium: transient attack, sustain and decay (plus release). As opposed to spectralism which metaphorically reproduces the overtones of a certain timbre in orchestral writing, *nanomusic* creatively reproduces and modulates the phases of a musical sound envelope. It mimics and "orchestrates" the stages of a musical sound envelope: attack, sustain, decay, dis-

playing a particular relationship with time: pertaining the time of a certain sound envelope as such (Lachenmann, 1966) or augmenting the time of the phenomenon in a creative way within the musical structure. A whole hidden world is revealed to our musical perception as if it were seen with a magnifying glass. From "nano" perception scale to macro perception scale.

Nanomusic also refers to the new music that occupies the zone of the very low dynamics (*ppppp, pppppp,* etc.), at the edge of the audible range of intensity, between "whispers" and etheric sounds. Composers like Salvatore Sciarrino, Francesco Filidei, Toshio Hosokawa and others embraced this kind of expression through quasi-immaterial sounds, relying on the transient zone of the attack.

A remarkable example of nanomusic aesthetics is represented by the music and the theoretical writings of the German composer Helmut Lachenmann. By means of instrumental combination and performing effects, Lachemann projects, modulates and enhances the inherent phases of the sound in music composition, preserving their innate time or allowing another time scale.

Lachenmann approaches timbre as an independent musical value, central to composition, focusing on the very elements of the envelope of the sound. In his article "Klangtypen der Neuen Musik", 1966, rev. 1993 (translated by Ming Tsao, 2014 and further explained by Peter Ivan Edwards[7]), Lachenmann wrote about two classes of sound types: sound as process and sound as object. He describes through musical examples several sound types in new music: Cadential Sounds (a process that points to the transient and decay phases of the sound envelope) and Timbre-Sound (that points to the stationary portion of the vibrations). Other types include "Texture Sound" and "Structure Sound" (Lachenmann, 1966; Tsao, 2014).

According to his view, "Cadential Sound" type (Fig. 8 and Fig. 9) is always a process, a combination of sounds that evolves in time, similar to a traditional cadenza. Its innate time (Eigenzeit) "is identical with the time that the sound will generally take to unfold". In the musical example illustrated at Fig. 9 (Lachenmann, 1966) the powerful strike of the marimba chord in a very loud dynamics *fff* will last a few seconds after the attack to decay, this being its natural innate duration). Lachenmann "orchestrates" the sound envelope phases of the marimba chord as follows: on the *attack* he adds a viola tremolo on an etheric G harmonic; he supplies the *sustain* portion of the marimba chord vibrations with the continuation of the tremolo and "mimics" the decay moment with the upwards glissando of the viola to the B flat harmonic with decrescendo. The musical event's duration equals the innate duration of the marimba chord and is associated with the idea of a classical "cadenza". The attack, sustain and decay phases of the marimba chord are emphasized and colored by the timbre of the viola which, unlike the marimba, can sustain the vibrations. Viola tremolo on a harmonic sound in *p* dynamics results in an etheric timbre which gradually disappears. The musical idea becomes the metaphoric mimic of the sound envelope phases.

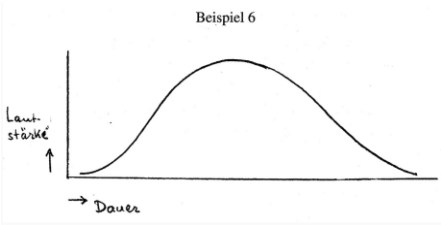
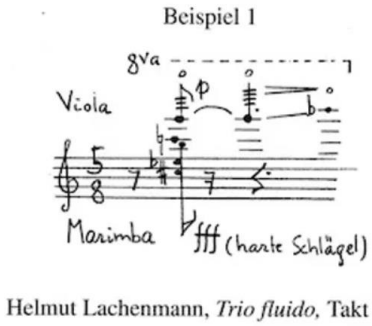


Figure 8. Helmut Lachenmann: Graphic illustration of a Cadential Sound type envelope (attack, sustain, decay)



Helmut Lachenmann, *Trio fluido*, Takt 186

Figure 9. Helmut Lachenmann (1966): Cadential Sound type.

[7] https://www.peterivanedwards.info/sound-types-new-music *(accessed 7 December 2022)*

The musical event's duration equals the innate sound duration (Eigenzeit) of the marimba chord. The attack, sustain and decay phases are "orchestrated" by the viola. Nanomusic example

Contrariwise, "Timbre Sounds" have an arbitrary duration, not taken in account its innate duration and could carry internal micro-movements and fluctuations although they are "static in their outer shape". Fig. 10 is the graphical representation of the "timbre Sounds" type. Fig. 11 is an example of a complex "stationary" chord with a "stationary" timbre, slowly evolving in time and slightly changing its pitch contour. It is a creative illustration of the "sustain" phase of the envelope, with micro-fluctuations or frequency modulation.

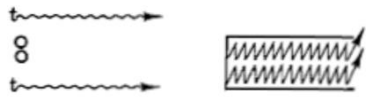


Figure 10. Helmut Lachenmann (1966): Timbre-Sound with internal movements
Graphic illustration

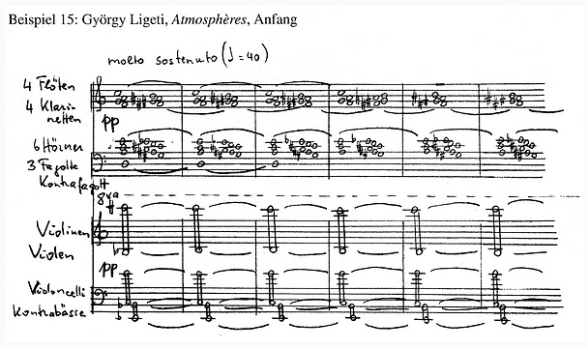


Figure 11. Helmut Lachenmann (1966): Timbre-Sound type
(arbitrary duration, static with slowly transformations including the contour)
Nanomusic example from Ligeti, *Atmosphéres*

6. HYPERTIMBRALISM

Timbre vocabulary has grown with extended instrumental and vocal techniques. But did it generate a syntax of its own?

The musical streams presented above, Sonorism, Spectralism and Nanomusic, all are Timbre-oriented, and all reject traditional referentiality. They embrace rather a post-Webernian purity of expression. Nonetheless, they are not absolute pure aesthetics, but mirror the template of the natural sound.

The proposed Hypertimbralism is a broader concept, which allows more freedom when composing with timbre as the main structural element, seeking musical beauty, intertextuality and intersecting with the universal cultural heritage. Many contemporary works could be regarded as hypertimbral and could be analyzed as such. Composers like Kajha Saariaho, Sofia Gubaidulina, Jonathan Harvey, Giacinto Scelsi, Jörg Widmann, are only a few that might fall in this category.

Hyper in Greek means excessive. **Hypertimbre** is defined as a "chimeric" composite timbre with an excessive number of distorted timbres involved. It carries an enlarged polyspectral energy (Dubnov, 1995), with harmonicity and inharmonicity coexisting in various degrees. It cannot be decomposed by the ear in its components, and it is perceived as an aggregate, typical of sonic mass.

Hypertimbre concept applies also to a single sound that is enriched, distorted by means of extended techniques and therefore has an excess of polyspectral energy on the sound / noise continuum axis. Its sonic quality includes more than the steady state of vibrations, which is the typical zone for classical music. The amount of inharmonicity will be increased due to the transient attack elements being stressed by the non-conventional instrumental techniques.

Hypertimbralism is the aesthetics resulted from the creative use of hypertimbres evolving in time and providing musical meaningfulness by means of **hyperlinks**[8]**.** Unlike prior discussed Timbre-based aesthetics, Hypertimbralism seeks referentiality and intertextuality. The timbral information in the score is not line-

[8] https://www.britannica.com/technology/hypertext *(accessed 7 December 2022)*

ar but acting as a "hypertext"[9](Ariyoshi, 1995). Hypertimbres suggest meanings that are beyond the musical text via hyperlinks. Various types of hyperlinks illustrated by musical examples are further presented in chapter 7.

6.1. Drama of timbre

Hypertimbralism also involves pursuing a drama of timbre.

In traditional classical music, drama is created by harmonic tensions (Rosen 1997, 1980). Hypertimbres can also create tensions by their ratio of sensory dissonance/consonance (Tenney, 1988; Terhardt, 1984; Sethares, 2005) thus replacing the harmonic functions in articulating the form and structure (Saariaho, 1987). Sensory consonance/dissonance is a perception response related to the inner texture of the hypertimbre which differs by various degrees of density. Textural densities or nonthematic surfaces could also provide perception of various levels of tonalness (Sethares, 2005), various ratios of harmonicity/inharmonicity on the continuum of Sound/Noise axes or various aural sensations of fusion/segregation of the combinations of timbres (Sandell, 1995). Using these subtle criteria of evaluating the perceived quality of the hypertimbres in the composition process represents a new approach in obtaining the drama of timbre.

7. SEARCH FOR MEANING. SPECTRAL LISTENING

Does timbre or hypertimbre carry a musical meaning? In Aristotelian key, what part of nature does it represent?

The musical meaning of timbre is to be found in the perception realm, corresponding to the spectral listening process. According to William Sethares (2005), there are two kinds of listening to a sound or a combination of sounds which both involve spectral perception: *holistic listening* and *analytic listening*. Holistic listening means hearing the sound as a single entity, not being aware of its accompanying partials. By extrapolation, we could say that a hypertimbre could be perceived as one entity, a fused one, the listener not being able to distinguish the other timbres involved. The resulting phenomenon is called *spectral fusion*. Alternatively, while listening to a sound, in certain conditions of attack, we could perceive some partials, even missing the fundamental (cf. harmonics on strings, mutiphonics on wind instruments, subharmonics, etc.). This happens when the spectral energy is unbalanced and the fundamental frequency ceases to be the strongest. By extension, if the chosen elements of a hypertimbre tend to reject each other, then we will perceive the multiple timbres involved. This kind of listening is called *analytic listening* and the resulting phenomenon is called *spectral fission*.

Generally, the descriptions of timbres (Blatter, 1980) are derived from these two modes of listening: holistic listening, which leads to spectral fusion perception and analytic listening, which leads to spectral fission perception.

7.1. Sensory Hyperlinks

In the musical literature there are abundant references to the human senses (Fig. 12), expressed through the quality of melody, harmony, or timbre. Timbre responds in a particular way to these perceptual suggestions. There are various sensations of timbre associated with the senses of sight, touch, weight, space, and smell. The sensation of timbre can be described in many ways: velvet, delicate, dark, luminous, ethereal, bright, misty, airy, fluid, aquatic, round, glassy, brassy, metallic, earthy, etc.

In this enumeration, some hyperlinks go to other senses than hearing, such as sight and touch. Other hyperlinks go to natural elements that we perceive with our senses, such as air, water, fire, metal, earth. When perceiving timbre, we also refer to its texture: smooth, grainy, transparent, opaque, dense, harsh, corrosive. All these descriptions apply to a single sound or a combination of sounds.

[9] https://www.merriam-webster.com/dictionary/hypertext *(accessed 7 December 2022)*

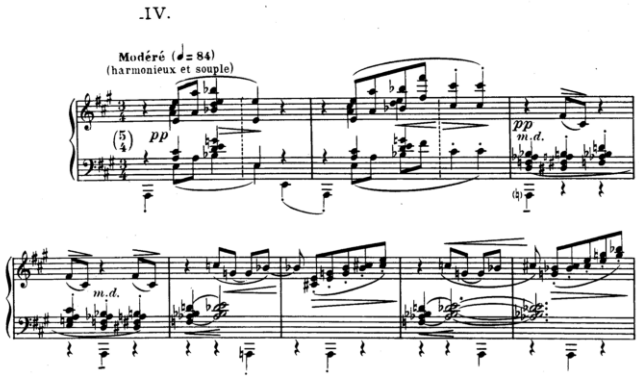


Figure 12. Debussy: *"Les sons et les parfums tournent dans l'air du soir".* Sensory hyperlinks

7.2. *Intercultural Hyperlinks*

Hypertimbres could be linked with various cultures or imaginary ones, from the same or different cultural contexts. Such hypertimbral works displaying cultural intertextuality are many in the contemporary repertoire. I will further present three relevant examples.

Sofia Gubaidulina: String Quartet No. 4 (1993)[10]

The 4th quartet of Sofia Gubaidulina presents an unusual setting of 12 instrumental layers (three quartets): two prerecorded tapes (A and B) consisting of two quartets tuned a quarter-tune apart and the quartet C that plays live.[11] An additional layer represents the timings and the play of the seven colored lights between light and darkness which are projected during the performance (Fig. 13). Gubaidulina stated in her performance notes that her interest in this piece was to represent "how «the real» arises from the «unreal»", that is "the birth of the «real genuine» from «unreal artificial»" referring to the relationship between the prerecorded quartets and the actual playing quartet. This work is full of timbral beauty. But the most eerie sonority results from the ricochet "tremolos" on the strings obtained by means of a plastic ball attached to a thin piano string.

The resulting rich ricochet "tremolo" resembles in my imagination the idiomatic tremolos of a Russian balalaika. This is an example of hypertimbralism with cultural referentiality. The combined prerecorded microtonal tuned layers together with the live quartet playing all sort of techniques (tapping on strings, col legno battuto, etc.) generate an overall augmented timbre, a "chimeric" one, with multiple hyperlinks.

Apart from the cultural referentiality, these hyperlinks are connections to other musical styles: counterpoint between the three quartets alludes to Baroque style, chorallike structure alluding to Renaissance (Koay, 2018). The whole work is strongly connected to modernity at the highest complexity level.

[10] *Program notes by the composer*: https://www.wisemusicclassical.com/work/24115/String-Quartet-No-4--Sofia-Gubaidulina/ *(accessed 7 December 2022)*

[11] https://www.chambermusicsociety.org/nyc/new-milestones-2021-22/visions-and-illuminations/ *(accessed 7 December 2022)*

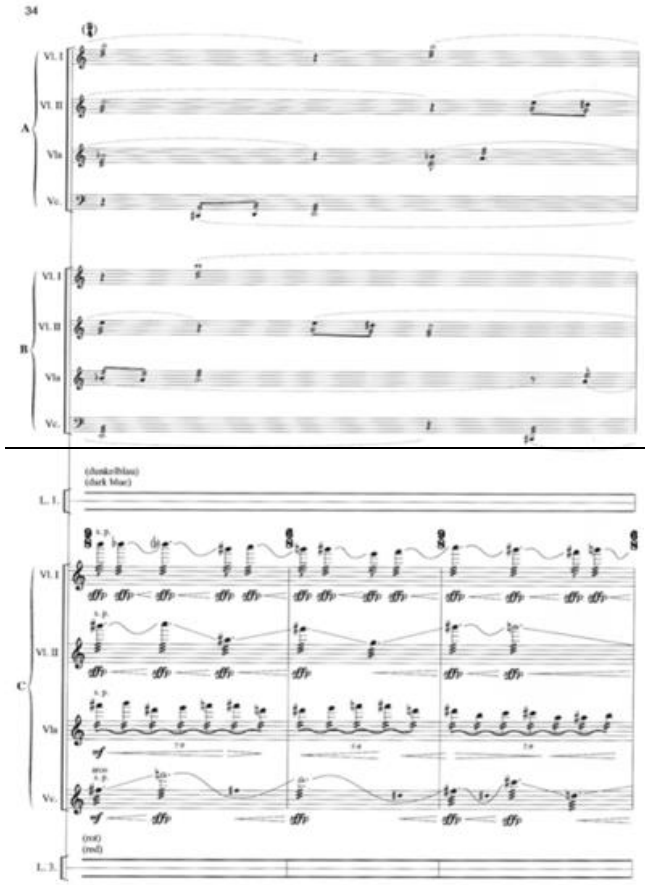


Figure 13. Sofia Gubaidulina: String quartet no. 4. Intercultural hyperlinks
Three superimposed quartets: A and B prerecorded quartets, C live quartet. Hypertimbre example

George Benjamin, British composer and conductor, has written a piece for 16 players and electronics called "ANTARA" (1987) which is the Inca name for panpipe. According to the programme notes (Faber Music[12]), "the sound of the oldest of all wind instruments has been recorded and transferred to the most modern of computers, initially the IRCAM 4X, creating an instrument ranging from the equivalent of panpipes 20 metres high to pipes of only a few millimetres. These are played via two Yamaha keyboards, which are surrounded by an ensemble of fourteen players." Benjamin created a digital "timbral creature", a hypertimbre of a panpipe with enormously enhanced technical possibilities via the keyboards. Combined with flutes, strings, trombones, and anvils, "these forces invoke the real power of the computerised keyboards – huge sustained microtonal chords, sweeping glissandi, breath-like sounds, percussive timbres – all derived from the original panpipes."[13] The hyperlink via panpipe (*antara*) timbre suggests the ethos of Inca civilization.

Violeta Dinescu: HERZRISS – opera in nuce in 11 Scenes for solo Voice with percussion (2004).

The Romanian composer gathered moments from her previous vocal works to build a mono-opera with powerful resonances in mythology and in modern literature, expressed through music of archaic to modern inspiration. It is a double arch in time concerning literature and music, portraying the female archetype.

The opera presents 5 female characters from Greek mythology to modern theatre (Fig. 14): Circe, from Concerto for Orchestra and obligato voice, text from Homer, *Odyssea*; Eréndira and Abuela from the opera *Eréndira* based on *La increíble y triste historia de la cándida Eréndira y de su abuela desalmada* ("The incredible and sad story of innocent Eréndira and her heartless grandmother") by Gabriel García Márquez; Tante Adelaide and Maria from the opera "*Hunger and Thirst*" based on the play by Eugène Ionesco. All five characters rep-

[12] https://www.fabermusic.com/music/antara-765 *(accessed 7 December 2022)*
[13] *Ibidem*

resent different hypostasis of the same being. According to Dinescu's program notes[14], "Circe is the one who makes them appear and disappear like in a labyrinth of one woman's soul".

The whole opera was sung by the phenomenal singer Christina Asher, who modulated her voice to obtain five distinctive vocal timbres reaching extreme registers. This is an example of a vocal hypertimbre obtained not only by enlarging the normal mezzo-soprano voice range but also by the singer's ability to generate a great variety of timbres by extended and non-conventional vocal techniques.

If we take in account only the first part assigned to Circe (Fig. 15), the frightening enchantress and minor goddess, it reveals a deep resonant alto voice who can perform different kinds of vibrato, of glissandi, of screaming, transforming the voice into a powerful and impactful instrument.

The natural resonance of the voice is further enhanced by the resonance of the open piano box and of the windy vibrations of the spring drum. All these timbral expressions are hyperlinks to the mythological story and to its environment: island, wind, water, mystery, danger, witchcraft. The sudden timbral shift to the wooden semantron is not only an effective musical contrast but a direct reference to the Ancient Greek ethos. The instrument is still used in the Greek and Romanian Orthodox Church.

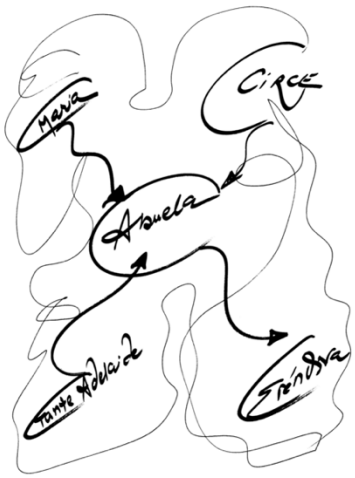


Figure 14. Violeta Dinescu: *Herzriss* – opera in nuce
Characters: Maria, Circe, Abuela, Tante Adelaide and Eréndira. Intercultural hyperlinks

[14] *Violeta Dinescu "Program notes" (by permission).*

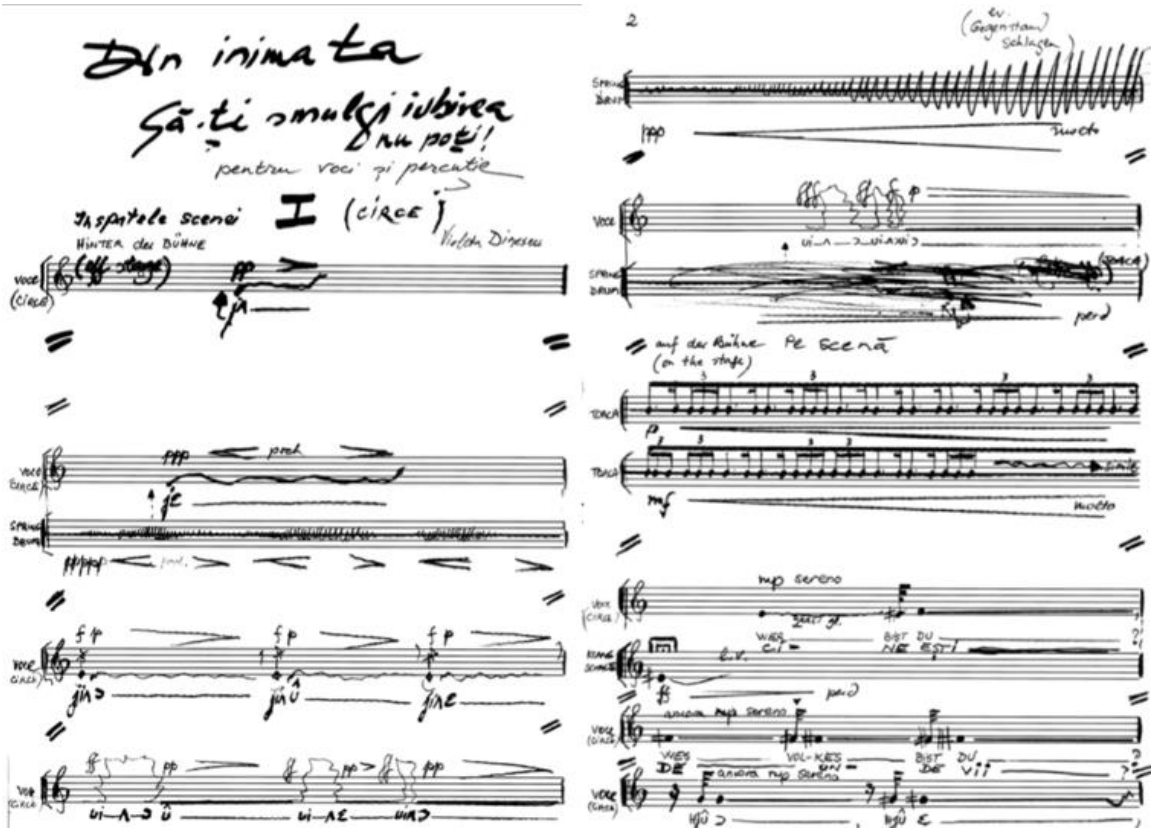


Figure 15. Violeta Dinescu: *Herzriss*, Part I, Circe
Intercultural hyperlinks

7.3. Natural elements hyperlinks

In the classical repertoire, as well as in modern music, various elements of nature are mostly depicted by means of texture and timbre. Rain, tempest, wind, thunder, and many other natural phenomena are musically expressed by composers according to their style.

Livia Teodorescu: *Rite for enchanting the Air* - Concerto for flute(s) - (1998)

The Flute(s) concerto was written between April and July 1998 in Huddersfield in the UK. It was commissioned by the renowned French flutist Pierre-Yves Artaud and is dedicated to him. He gave the world premiere in Huddersfield on 17 February 2000 with the Huddersfield University Orchestra conducted by Barrie Webb and the Romanian premiere on 24 May 2002 in the Mihail Jora Concert Hall with the Romanian Radio National Orchestra conducted by Alan Tongue.

The poetic idea of this concerto is to reveal the magic of sound appearing through vibrations in the air. Air is here regarded as a primary element of nature, along with fire, water, and earth. The concerto is intended to function like an incantation, such as can be found in pre-Christian cultures. There are many rituals for bringing rain, or the sun, or to make the earth fertile. Like the orthodox rituals which sanctify water for the health of believers, this *Rite* aims metaphorically to sanctify the air we breathe in a quest for spiritual enlightenment.

In this concerto, the element of breathing one finds in playing the flute is emphasised – exploiting the sound of air lost while the music is produced. During the piece, the player interchanges different kinds of instruments from the flute family, obtaining a wide range and different timbres, from bassflute to piccolo, with this enriched range of the flute part becoming a "hypertimbre" in its own right.

In order to maximise contrast, on several occasions the elements of breathing are transformed into metallic sonorities using anvils, triangle, tubular bells and cymbals. Most of the time, the orchestral sonorities are obtained by extended instrumental techniques, allowing elements of noise to combine with normal sounds, thus creating an enriched global timbre.

The Concerto has four movements played continuously (*attacca*), built on several pedals that act as fundamental tones with their superimposed overtones.[15]

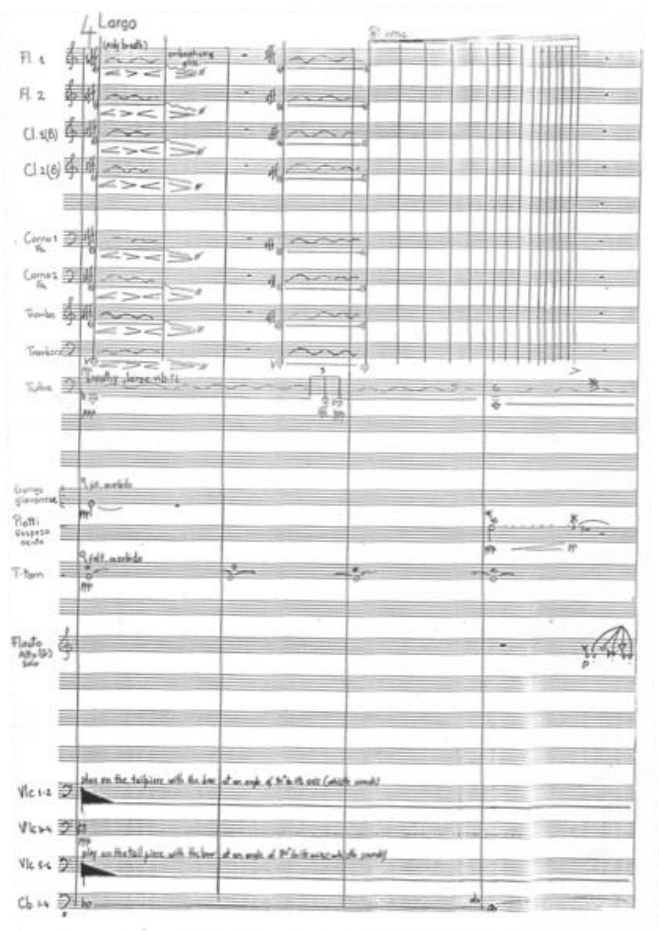


Figure 16. Livia Teodorescu: *Rite for enchanting the Air* – Concerto for Flute(s)
Natural elements hyperlinks. Imaginary ritualic music

7.4. *Theological hyperlinks*

Livia Teodorescu: *Mysterium tremendum* – Cantata for mezzo-soprano and orchestra (2016)[16]

The cantata was premiered in 2016, May 25, during the *International Week of New Music* Festival in Bucharest. It was performed by the mezzo-soprano Antonela Barnat and the Radio Romania Chamber Orchestra conducted by Cristian Oroșanu.

The title of the work refers to the theological syntagma introduced by Rudolf Otto, *mysterium tremendum et fascinans* - which expresses the duality of religious feeling: believers are both shaken and fascinated in front of divine mystery. *Mysterium tremendum* combines the feeling of fear when confronted with sacred or heavenly wrath, but also the feeling of fascination, of uplifting the spirit in relation to the perfection and fullness of divine love. I selected some excerpts from Orthodox and Catholic liturgical texts that illustrate both emotions: a fragment from '*The Hymn of the Cherubim'* (the Romanian text is from '*the Heruvic*'), a fragment from the Gospel of Matthew (text in English) and excerpts from the *Dies Irae* (texts in Latin).

Apart from the natural different sonorities of the vocal part, the multilingual texts provided a perpetual modulation of ethos which enabled me to think musically in terms of distinctive timbral ethos. For me, the resonance of the texts, mirrored by the timbral soundscapes of the orchestra, suggested the cultural

[15] *Presentation text by the author available also in the booklet of the Toccata Classics album TOCC0668, Livia Teodorescu-Ciocanea Orchestral Works.*
[16] https://repertoire-explorer.musikmph.de/en/product/teodorescu-ciocanea-livia-2/ *(accessed 7 December 2022)*

differentiation between the two rites: Orthodox and Catholic. My intention was to compose an æcumenical music, with East and West unified fundamentally via timbre and ethos."[17]

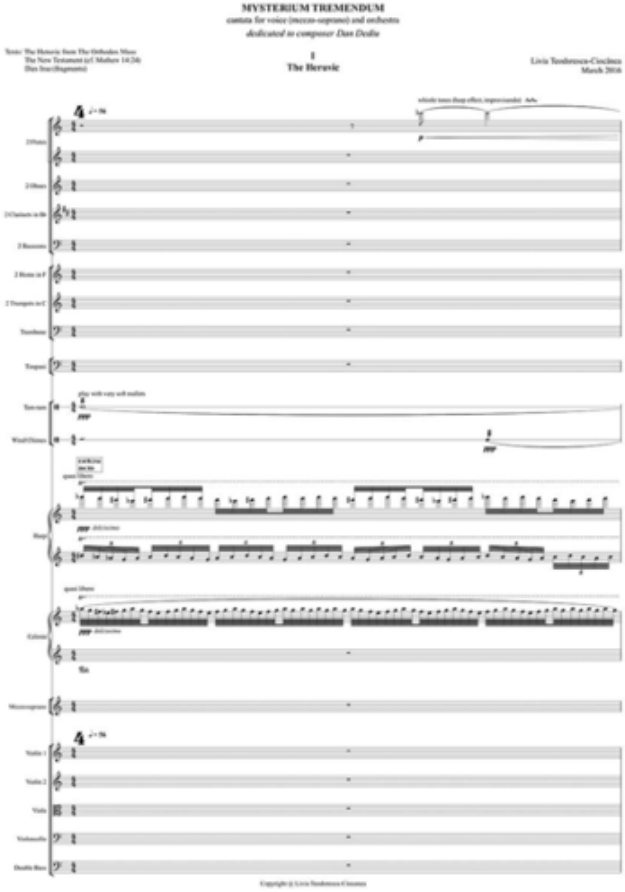


Figure 17. Livia Teodorescu: *Mysterium tremendum* - Cantata for mezzo-soprano and orchestra
Theological hyperlinks. Æcumenical approach

7.5. Historical narration hyperlinks

Livia Teodorescu: *Archimedes* Symphony (2011, rev. 2017)

Archimedes Symphonywas written between 2006 and 2011, and it received the world premiere on 27 May 2011 at the Mihail Jora Concert Hall of the Romanian Radio Broadcasting Company in Bucharest, performed by the Romanian Radio National Orchestra conducted by Valentin Doni during the International Week of New Music Festival. In 2017 a revised version was performed by the George Enescu Philharmonic Orchestra at the Romanian Atheneum.

In the *Archimedes* Symphony I followed a scenario by means of powerful orchestral sonorities. I searched for the core of the symphonic potential.

Scored for large orchestra and organ, the *Archimedes* Symphony aims at monumentality in drama, form and orchestration. It is composed of four linked parts with programmatic titles: 1. "The Assault on Syracuse'; 2. 'Noli tangere circulos meos' 3. 'The Burning Mirrors of Archimedes'; and 4. 'Elegy at the Tomb of Archimedes – The Sphere and the Cylinder'.

The *Archimedes* Symphony is based on expositions and thematic developments, with the unleashing of orchestral forces in line with the illustrious symphonic tradition of Beethoven, Bruckner, or Wagner orchestral writing. Nevertheless, with an enhanced harmonic density and freedom of form and textures, I tried to obtain through timbre extreme contrasts between powerful sonorities that would expose to the maximum the natural resonance of the orchestra and transparent and hieratic heterophonic fabrics. This symphony also attempts to achieve an aesthetic fusion between two great musical traditions: western

[17] *Presentation text by the author available also in the booklet of the Toccata Classics album TOCC0668, Livia Teodorescu-Ciocanea Orchestral Works.*

symphonic tradition and a lament-like melody of eastern origin, in the spirit of a Romanian "doina"[18](as in the fourth part of the symphony).[19]

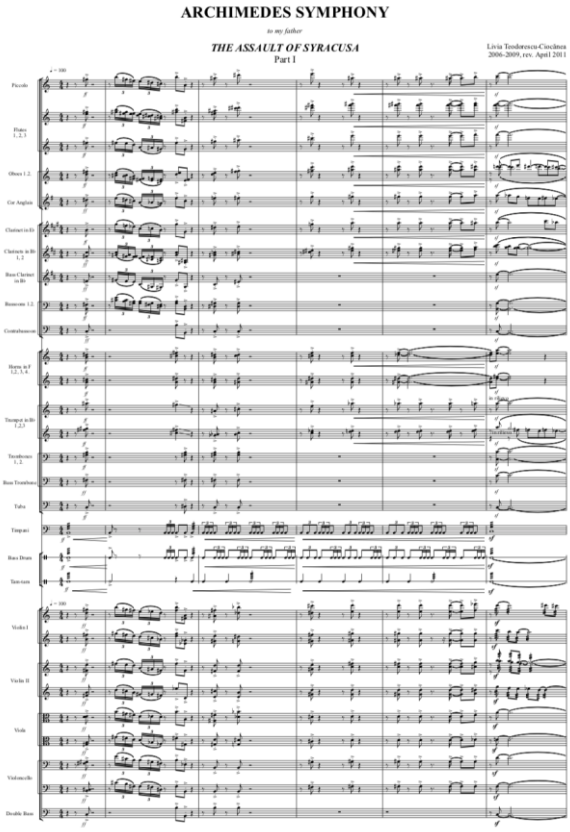


Figure 18. Livia Teodorescu *Archimedes* Symphony, Part I
Historical narration hyperlinks

7.6. Literature hyperlink

Livia Teodorescu: *Le Rouge Et Le Noir* – 3 acts ballet after Stendhal

Entering the realm of theatrical demands, I approached Stendhal's novel from a psychological perspective and from a psychoacoustic one. I was seeking for lyricism and drama through an enhanced use of timbral combinations and, at times, hypertimbral sonorities, yet allowing melody, harmony and rhythmic pulsation to prevail.

As stated in the booklet of the Toccata Classics CD TOCC 0595[20] featuring the recording of the ballet *Le Rouge et le Noir*:

> "Lyric theatre in opera and ballet had always emphasised a sense of beauty and splendour which corresponds in a very basic way to the emotional expectations of the audience. I didn't want to turn away from that kind of beauty and especially from the catharsis of an effective drama in favour of novelty. The question was how to create drama and climatic accumulation within a plastic, harmonic framework. I put together opposites: flux and solid, dreamy and dynamic, softness and roughness, clarity and obscure. I developed melodies and rhythms within spectral sonorities (harmonies based on the harmonic spectrum), or I used sonic mass and ultra-chromatic sonorities to achieve a sense of paroxysm – neo-lyricism versus neo-dramaticism, if you like. Nevertheless, I made sure that rhythm provided the energetic potential for dance, and the melodies float within spectral harmonies. The drama is sustained by the perpetual increase

[18] *"Doina" is "a Romanian folk song usually in the form of a lament" Merriam-Webster dictionary* https://www.merriam-webster.com/dictionary/doina (accessed 7 December 2022)
[19] *Presentation text by the author available also in the booklet of the Toccata Classics album TOCC0668, Livia Teodorescu-Ciocanea - Orchestral Works.*
[20] Booklet CD Toccata Classics TOCC0595
https://toccataclassics.com/product/livia-teodorescu-ciocanea-le-rouge-et-le-noir/ (accessed 7 December 2022)
https://d2vhizysjb6bpn.cloudfront.net/TOCC0595DIGIBKLT.pdf

of tension towards climaxes, or, by contrast, by gradually losing energy – pulsation and momentum as opposed to stasis. After all, the range of symbols in the novel is very wide: from military Napoleonian coat (The Red) versus ecclesiastical robes (The Black), or simply love and death.

In this particular work, I followed the demands of ballet music that required, along with the timbral alchemy, a strong connection to the main roots of the western classical tradition, infused, in this case, with a flavour of eastern music."

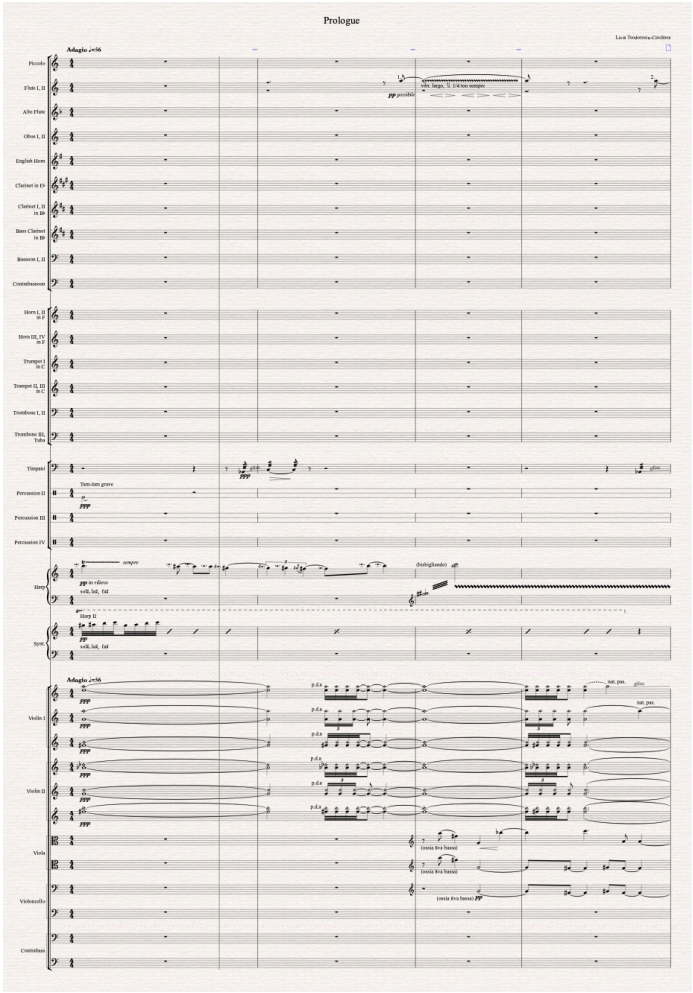


Figure 19. Livia Teodorescu: *Le Rouge et le Noir* – Ballet in 3 acts, Prologue.
Literature hyperlinks

Future prospects

A poetics of hypertimbralism defines how timbre is manipulated to generate different levels of meaning via hyperlinks. It opens a more acute interest in the subtleties of the timbre perception. It is the "making-of" a musical composition involving hypertimbres which allows a richer and freer approach to composition through timbre than the ones related previously in this paper.

It also refers to the poetry of timbre, seeking for a more acute awareness of timbre sensations through spectral listening evaluation. Developing the concept of hypertimbralism, composers can master a new tool for achieving drama and emotionality at the highest level of their musical craft.

ACKNOWLEDGEMENTS

I thank the anonymous reviewers for their constructive comments.

REFERENCES

Aristotle. (c. 335 BC, 2000) *Poetics*. Dover.

Ariyoshi, Y., Shimojo, S, & Miyahara, H. (1995)Hyperscore: A design of a hypertext model for musical expression and structure. *Journal of New Music Research*, 24(2), pp. 130–147. https://doi.org/10.1080/09298219508570679 (accessed 7 December 2022)

Blatter, A. (1980) *Instrumentation/Orchestration*. New York: Longman.

Dinescu, V. (2004) Program notes *Herzriss* – not published.

Dolan, E. I., and Rehding, A. (eds), *The Oxford Handbook of Timbre* (2021; online edn, Oxford Academic, 8 May 2018), https://doi.org/10.1093/oxfordhb/9780190637224.001.0001, accessed 14 Nov. 2022.

Dubnov, S., Tishby, N., Cohen, D. (1995) Hearing Beyond the Spectrum. *Journal of New Music Research*, Vol. 24:4, pp. 342-368.

Grisey, G. (1987) Tempus et Machina: A composer's reflection on musical Time. *Contemporary Music Review* 2, pp. 241-77 Harwood Academic Publishers.

Grisey, G. (1991) Structuration des timbres dans la musique instrumentale, in *Le timbre, métaphore pour la composition,* ed. Jean - Baptiste Barrière, Paris. Christian Bourgeois/IRCAM, pp. 385-85.

Guigue, D. (1997) Sonic Object: A Model for Twentieth - Century Music. *Journal of new music research* Vol. 26:4, pp. 346-373.

Hasegawa, R. (2009) Gérard Grisey and The "Nature" of Harmony. *Music Analysis*, *28*(2/3), pp. 349–371. http://www.jstor.org/stable/41289710, (accessed 7 December 2022)

Hasegawa, R. (2019) Timbre as Harmony—Harmony as Timbre, in Emily I. Dolan, and Alexander Rehding (eds), *The Oxford Handbook of Timbre* (2021; online edn, Oxford Academic, 8 May 2018), chapter 21, pp. 525-551 https://doi.org/10.1093/oxfordhb/9780190637224.013.11, accessed 19 Nov. 2022.

Koay, Kheng K. (2018) Gubaidulina's String Quartet No. 4: Recreation of Traditions in a New Musical Context. Per Musi. Belo Horizonte: UFMG. pp. 1-13.

Kostka, S., and Santa, M. (2018) *Materials and Techniques of Post-Tonal Music*. Taylor & Francis Group.

Lachenmann, H. (1996) Klangtypen der Neuen Musik, in Musik als existentielle Erfahrung: Schriften 1966–1995 (Wiesbaden: Breitkopf & Härtel, 1996): 1.

Lindstedt, I. (2018, online 2019) Lutoslawski and Sonoristics. In L. Jakelski & N. Reyland (Eds.), Lutoslawski's Worlds (pp. 165-182). Boydell & Brewer. DOI: https://doi.org/10.1017/9781787442214.008 (accessed 7 December 2022)

Murail, T. (1984) Spectra and pixis. *Contemporary Music Review*, Vol. 1:1, pp. 157-170.

Murail, T. (2005) Scelsi, De-composer (transl. By Robert Hasegawa). *Contemporary music Review*, Routledge, Vol. 24, No. 2/3, April/June 2005, pp. 173-180

Niculescu, Șt. (1980) *Reflecții despre muzică*. Ed. Muzicală, București.

Rahn, J. (1980). *Basic atonal theory*. Longman, New York.

Rappoport, L. (Gelfand) (1983, online 2008) Sonorism: Problems of style and form in modern Polish music. *Journal of Musicological Research*, 4:3-4, pp. 399-415, DOI: 10.1080/01411898308574538 (accessed 7 December 2022)

Rosé, A. (2018) Kaija Saariaho. Before the sound fades away… Kaija Saariaho's music at Sentralen Concert Hall in Oslo, 31st May 2018. https://www.academia.edu/36969553/Kaija_Saariaho.pdf (accessed 7 December 2022)

Rose, F. (1996) Introduction to the Pitch Organization of Spectral Music. *Perspectives of New Music*, Vol. 34, no. 2 - summer, pp. 6-37.

Rosen, C. (1997). The classical style : Haydn, Mozart, Beethoven (Expanded ed.). New York: W. W. Norton.

Rosen, C. (1980). Sonata forms (1st ed.). New York: W. W. Norton.

Saariaho, K. (1987) Timbre and harmony: interpolations of timbral structures. *Contemporary Music Review*, Vol. 2:1, pp. 93-133.

Sandell, G. J. (1995) Roles of Spectral Centroid and Other Factors in Determining Blended Instrument Pairings in Orchestration. *Music Perception*, Vol. 13, no.2, pp. 209-246.

Schneider, A. (2000) Inharmonic Sounds: Implications as to 'pitch', 'timbre' and 'Consonance. *Journal of New Music Research,*Vol. 29, No 4. pp. 275–301.

Sethares, W. A. (2005) *Tuning, Timbre, Spectrum, Scale*. 2nd ed., London: Springer-Verlag.

Smalley, D. (1986) Spectro-morphology and Structuring Process, in *The Language of Electroacoustic Music*, ed. S. Emmerson, pp. 61-93.

Tenney, J. (1988) *History of 'consonance' and 'dissonance'*, New York: Excelsior Music Pub.

Terhardt, E. (1984) The concept of musical consonance: a link between music and psychoacoustics. *Music perception 1,* No.2, Spring, pp. 276–295.

Teodorescu-Ciocanea, L., Crotty, J. (2015) Spectral examination of Byzantine Chant Archetype. *Journal of the International Society for Orthodox Church Music,* Vol. 1, pp.1-19
Teodorescu-Ciocanea, L. (2003) Timbre versus Spectralism. *Contemporary Music Review* 22/1–2: pp 87–104.
Teodorescu-Ciocanea, L. (2004) *Timbrul muzical – Strategii de compoziţie.* Editura muzicală, Bucureşti.
Tsao, M. (2014) Helmut Lachenmann's "Sound Types". *Perspectives of New Music* Vol. 52, no. 1, Winter 2014, pp. 217–238. https://doi.org/10.7757/persnewmusi.52.1.0217 (accessed 7 December 2022)

REFERENCES INTERNET (last accessed 7 December 2022)

https://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0056%3Asection%3D1447a
https://learn.leighcotnoir.com/2015/08/understanding-audio/
https://musiclab.chromeexperiments.com/spectrogram/
https://steinberg.help/wavelab_elements/v9.5/en/wavelab/topics/audio_analysis/3d_frequency_analysis_c.htmlhttps://www.wisemusicclassical.com/work/24115/String-Quartet-No-4--Sofia-Gubaidulina/
https://www.chambermusicsociety.org/nyc/new-milestones-2021-22/visions-and-illuminations/
https://www.peterivanedwards.info/sound-types-new-music)
https://www.cambridge.org/core/books/abs/lutoslawskis-worlds/lutoslawski-and-sonoristics/4B7825BA3CC79DCA9E0A04A68B6C4307
https://www.fabermusic.com/music/antara-765
https://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.01.0056%3Asection%3D1447a
http://musicinmovement.eu/glossary/sonoristics-sonorism
https://www.investopedia.com/terms/h/html.asp
https://toccataclassics.com/product/livia-teodorescu-ciocanea-le-rouge-et-le-noir/
https://d2vhizysjb6bpn.cloudfront.net/TOCC0595DIGIBKLT.pdf

SCORES

Debussy, *Prélude à l'après midi d'un faune,* Bärenreiter Urtext, Verlag
Ligeti, *Atmosphères* – Universal Edition No. 11418
Krzsysztof Penderecki: *De natura sonoris 2 per orchestra,* Edition Schott 6335
Gérard Grisey: *Partiels,* Ricordi
Debussy: "*Les sons et les parfums tournent dans l'air du soir*'', Schirmer
Sofia Gubaidulina: String quartet no. 4, Sikorski, SIK8506
Violeta Dinescu: *Herzriss* – by permission
Livia Teodorescu: *Rite for enchanting the Air* – Concerto for Flute(s)
Livia Teodorescu: *Mysterium tremendum* - Cantata for mezzo-soprano and orchestra. Hoeflich Repertoire Explorer
https://repertoire-explorer.musikmph.de/en/product/teodorescu-ciocanea-livia-2/
Livia Teodorescu *Archimedes* Symphony
Livia Teodorescu: *Le Rouge et le Noir* – Ballet in 3 acts after Stendhal