# Aspects of style and composition in drone music

## Introduction

Drone is a style of music, which originated in the second half of the 20th century and found its place in a variety of experimental music genres. Music, which contains long, sustained sounds, tones or tone-clusters, can be found in the work by many composers of electronic, electroacoustic and acoustic music and by artists who have allied themselves with various institutional and underground music scenes. Despite being widespread, this particular style of music remains largely under-researched and under-analysed (Demers, 2010). Furthermore, the attempts to define drone music and interpretations thereof found in literature may vary significantly.

There is a received opinion within musicology that drone music originated with La Monte Young (sources also mention Phill Niblock and Charlemagne Palestine among the forefathers of the genre). He defined drone music as "the sustained tone branch of minimalism" (La Monte Young, Mela Foundation, 2000), while other sources suggest alternative definitions. It is quite often that drone music is likened to the similar-sounding ambient music. For example, *The Cambridge History of Twentieth-Century Music* classifies drone under ambient, albeit noting that the early drone music had a formative influence behind the emergence of ambient music. Musicologist Joanna Demers discusses these two trends in separate chapters of her book *Listening through the Noise*: she attributes drone to the maximalist styles (such as noise and dub techno), while putting the description of ambient music in the context of "atmospheric," space-oriented music (soundscapes, field recordings and the like).

Given the situation described above, it should not seem surprising that the very definition of the style is rather perplexing. The analysis of such music poses further problems, since it is oftentimes quite incoherent, fragmentary and evasive. Moreover, the prerequisites for the emergence of the style and compositional strategies applied therein remain unclear. On the other hand, this may be determined by the experimental nature of this music and the lack, if not total absence, of conspicuous sound events: works composed using one or several sustained sounds (or tones) entail no syntactic relations and offer only a limited scope of known models for interpretation. What can be actually analysed in the music of sustained tones are the tones *per se* and characteristics thereof, micro-dimensional variation and rate of change, as well as modes of experiential perception.

Some further problems arise due to the lack of conclusive evidence in literature on the given subject matter. Even though stylistically drone is usually subsumed under minimalism, drone-based music appears to be much less analysed than pulse-based or repetitive-pattern-based music (Potter, Mertens, Fink). Possibly, the novelty and indefinite placement of the genre (drone originated in the context of academic music and only later gained popularity in the electronic and experimental music scenes) continue to be moot questions for researchers, thereby limiting the possibilities of analytical scrutiny. Yet, such limitations seem to be inherent in the structural features of drone music itself: since long, sustained tones have no syntactic interrelation, they do not build up to form a flow of information (but rather inhibit such flow), which in turn gives little material for analysis and leaves many questions concerning the perception of such music. Within Western music theory, the long-established models of analysis based on material rich in syntactic relations have no pertinent tools for research into static music. However, the recently revived interest and research conducted over the past decades in the fields of music perception (Snyder, 2000), the aesthetics (Demers, 2010) and structural features of experimental music (Roads, 2015) provide a fertile ground for the analysis of the hitherto unexplored routes of artistic endeavours.

The **subject of this research** is drone understood primarily as a stylistic category, taking into account its definition, origins (prototypes in the environmental sounds, archaic music and contemporary artistic processes), manifestations in the music of the second half of the 20$^{th}$ century and the beginning of the 21$^{st}$ century, and various aspects of composition. The perception of slow sound processes is for the most part left outside the scope of this research because it would require an in-depth overview of broader cognitive contexts. Instead, this research focuses on the analysis of auditory characteristics and structuring of micro-dimensional variation.

Among the **objectives of this research** are attempts to disambiguate the definition of drone as a stylistic category, to disentangle the perplexing issues concerning the origin and manifestations thereof, and to describe the aspects of composition technique. These objectives pertain to the following **goals of this research**:

1. To delineate the stylistic boundaries of drone music.
2. To describe the most important aspects of its origin.
3. To analyse the aural manifestations of this style.
4. To define the specific features of composition technique associated with this style.

**Methods of research.** This research has been conducted using comparative, descriptive, historiographic methods, as well as spectral and auditory analysis.

**Resources of research**. The literature on the subject in question may be grouped as follows:

1. Literature about experimental electronic music and sound technology.

2. Literature about the artists and their work.
3. General literature on musical topics.
4. Scholarly literature on non-musical topics.

The first group comprises books and articles discussing generally the experimental, electronic music and sound technology. The dissertation draws on studies in a variety of topics, such as general aesthetics and the aesthetics of electronic music (Cox & Warner, 2006; Demers, 2010; Hainge, 2004; Kahn, 2010; LaBelle, 2004; Pakarklytė, 2007, 2009; Roger, 2006; Tara, 2010; Toop, 1995); the aspects of composition in the field of electronic music (Leigh, 2012; Roads, 2001, 2015; Snoman, 2009); and the history of computer-aided composition (Holmes, 2002; Manning, 2004). In the analysis of technological aspects, this researched relied on the recent studies in acoustics (Everest & Pohlmann, 2009; Mittal, 2010) and the basics of computer sound synthesis, processing and editing (Katz, 2002; Miranda, 2004; Roads, 1998, 2001).

Within the second group of sources, the most important part is dedicated to the analysis of work by La Monte Young, the alleged originator of drone music (Duckworth & Flemming, 2009; Grimshaw, 2011; Oteri, 2003), and his colleague Charlemagne Palestine (Guzman, 2003). The indispensable source of information for the overview of Phill Niblock's contribution to the genre was his own statements taken from the interviews (Freerix, 2011; Gilmore, 2007) and analytical observations of his selected works (Straebel, 2011). The research has also taken into account the general literature on minimalism (Mertens, 1988; Nakas, 2001, Nakienė, 2004; Potter, 2004), commentaries by the composers in question (Oliveros, 2010), and literature on rock and metal music subcultures (Morrison, 2004; Phillipov, 2012; Stubs, 2005).

General literature on harmony (Aldwell & Shachter, 2008; Piston, 1959; Schenker, 1980; Schoenberg, 1954, 1956), tuning systems (Gann, 1998, 2004; Sethares, 2005), cognitive aspects (Ambrazevičius, 2006, 2010, 2012; Snyder, 2000), and specific dimensions of sound (Erickson, 1975) were used as a referential framework for the analysis of certain aspects of sustained sound. To gain a broader perspective, some ethnomusicological research has been also taken into consideration (Račiūnaitė-Vyčinienė, 2002, 2004; Rüütel, 1998; Sungailienė; 2009).

The last group comprises studies in natural sciences (Ažusienis, Pučinskas, Straižys, 2010; Applebaum, 2000; Clark, 1997; Clive & Johnson, Liddle, 2003; 2013; Penrose, 2004, 2010), infrasound (Angliss, 2002; Hsuan-Hsiu & Narins, 2014; Moller & Pedersen, 2004), geophonic and biophonic sounds (Assink, 2007; Krause, 1998; Martinelli, 2010; Shepard, 2003). It also contains a sub-group of sources that fuse discourses of sonology and natural sciences (Balbi, 2008; Choi, 2004; Fraknoi, 2008; Rothenberg, 2014).

An inquiry into the origin of drone style helped arrive at a more precise description of the style, focus on its distinctive aural characteristics and genesis of formal features. This dissertation comprises an introduction, four chapters, conclusions, and bibliography. The first chapter gives a historical perspective on the development of drone style and presents an overview of its prototypes. The second chapter gives a broad overview of the style and discusses the output of some artists whose work is considered representative of this genre. The third chapter examines the aspects of composition technique and creative strategies in terms of how four basic parameters of sound (duration, pitch, timbre, and volume) are manipulated in the pieces of drone music. The fourth chapter focuses on the expressive means of drone style employed in the works by Mykolas Natalevičius.

## 1. The origins of the drone style

This chapter explores the prerequisites for the genesis of the drone style, drawing largely on the interviews with the composers. In an attempt to articulate differences between repetitive minimalism and drone-based music, the author came to a conclusion that the emancipation of drone occurred as a result of differentiation within the trend of minimalist music: some composers sought to achieve the drone effect by using repetitive concepts (Glass, Reich, Riley), while others did the same by employing long sustained sounds (Young, Niblock, Palestine, Radigue, Oliveros, and others).

### 1.1. Prototypes of drone music: from archaic cultures to modernism

When it comes to consideration of the drone phenomena in 20$^{th}$-century art, influences may be found in many different fields, such as conceptual art, minimalism in visual arts in its germinal stage, and non-Western music. However, our sole interest lies in systematic and fundamental conditions for the formation of the drone style, which may be divided into several groups of formative influences (in chronological order) and classified as pre-musical, musical and post-musical.

### 1.2. Pre-musical prototypes

This group of drone prototypes includes ancient philosophical and religious concepts about the structure of the Universe (e. g. *anahata nada*, harmony of the spheres), as well as sounds existing in geophonic and biophonic environment. It was discovered that the significance of the analysed phenomena is determined not only by the impact of these phenomena on the origin of

music, but also by the sublime quality attached to them, which in turn determined the aesthetic and philosophical qualities of the drone style. Young was especially systematic in explaining the importance of pre-musical influences on his work. In his whole oeuvre, he concentrates on the search for the universal structures that would resonate with the structure of the Universe. Concepts of *anahata nada* and harmony of the spheres and transformations thereof in the course of history are being extensively analysed in this chapter. These two concepts are also among the most frequently mentioned in the composers' talks and writings about their work. Similar philosophical and sound concepts make an aesthetic foundation of the drone style, which validates the principle of economy in compositional processes and tendency to focus attention on a single tone and its detailed analysis.

The analysis of geophonic and biophonic sounds is of equal importance. It helped ascertain that the monotonous humming sound characteristic of the style arose from the desire to express grand aesthetic concepts. Taking into account the studies of infrasound, it seems plausible to trace the connection between the density of low-frequency sounds in the drone style and the feelings of anxiety, awe and fear in human beings, caused by strong low-frequency vibrations.

### 1.3. Musical prototypes of drone

The process of sustained sound is frequently encountered in **archaic cultures**. The phenomenon of bourdon (or drone bass) may be found in many traditional cultures of the world, where it serves as a primitive accompaniment consisting of one or two sustained tones (usually, a perfect fifth apart). According to Edith Gerson-Kiwi, bourdon is a universal musical phenomenon, found across Eastern and Western traditional cultures, and may be classified under basic forms of instrumental polyphonic music next to ostinato, chord progression, and free counterpoint. The musical prototypes of the drone style may be found in the folklore of Australia, India, Baltic countries and other regions. Such archaic forms of instrumental music with sustained bass drone became later embraced in Western art music, where it came to be known as bourdon, cantus firmus (e. g. in the organum compositions by Léonin and Pérotin), and organ (or pedal) point. 19$^{th}$-century composers sometimes used a humming effect similar to that employed in contemporary compositions (e. g. Wagner's prelude to the opera *Das Rheingold*). All these phenomena taken as a whole constitute a continuum of sustained sound in music.

The sustained sound is also featured in a variety of post-musical phenomena that often serve as a source of inspiration and material for acoustic ecology (soundscape studies), sound and new media art. Young clearly pointed to these particular phenomena as his source of inspiration when he referred to buzzing power lines and electrical transformers, which made a huge impression on him as a child. The transformations of extra-terrestrial "sounds" recorded by NASA Voyager in the

album *Symphonies of the Planets* and composition methods in the work by Mykolas Natalevičius can be also attributed to this group of prototypes.

## 2. The scope of the drone style

The context of drone-based music encompasses quite a broad range of phenomena and a diverse body of work by various artists. This chapter discusses the activities and artistic output by the most prominent representatives of the genre, including La Monte Young, Phill Niblock, Charlemagne Palestine, Éliane Radigue, Pauline Oliveros, and the bands like Earth and Sunn O))).

### 2.1. La Monte Young as the originator of the drone style

The American avant-garde artist, composer and musician La Monte Thornton Young (b. 1935) is not only the foremost representative of the drone style but is also credited with blazing the trail for minimalism in music. He was the first among the 20$^{th}$-century composers of Western art music to dedicate his work primarily to the experimentation with sustained sounds. Embracing various inspirations evoked by natural and artificial environmental sounds (such as the thunder strike, the electromagnetic hum of electrical transformers and telephone poles, rumbling trains and hissing wind) and influences coming from various cultures (Indian classical music, conceptual art, jazz improvisation, blues music that he had played with his band as a student), Young synthesized his unique style based on one governing principle – the endless continuum of sound. He was fascinated by the inner potential of sound structure and sought to create his own kind of *anahata nada* – the "unstruck sound" of universal structure – a concept that he had adopted from the Indian classical thought. The correlation between composed and improvised music in his work is really inextricable, rendering attempts to draw distinctions between the two all but useless.

### 2.2. The music of Phill Niblock

Phill Niblock (b. 1933) is yet another American composer, filmmaker, videographer and director, who continued to explore the possibilities of the drone style in his own peculiar way. He was self-taught as a composer, working initially as a photographer and filmmaker in New York. His first musical compositions date from 1968. Like Young, he explored the overtone patterns of sound and created very dense textures, often using atonal tunings and powerful volume to enhance the effect of layered tones (pre-recorded instrumental sounds) only very slightly distinct in pitch and complex overtone patterns above the drone bass.

2.3. Piano and organ rituals by Charlemagne Palestine

Although Charlemagne Palestine (b. 1945) – an American composer, performance and visual artist – does not consider himself a musician in the strict sense of the word, his output features quite a few drone compositions. His reputation as a composer rests on intense ritual pieces for carillon, organ and piano, as well as on aggressive and sometimes risky performances. He was educated at the universities of New York and Columbia, Mannes College of Music and California Institute of the Arts. He was born in Brooklyn to Eastern European Jewish immigrant parents (originally from the Ukraine and Belorussia). Palestine came of age singing in synagogues and soon thereafter grew to fame as a carilloneur and active participant in the avant-garde scene of New York-based artists. His musical pieces are distinguished for linear variability, ritual quality, the unconventional use of conventional classical instruments (e. g. organ or piano), and usually very high levels of volume.

2.4. Pauline Oliveros, Éliane Radigue and other composers of the electronic drone music

Although the development of drone music started out in the fields of acoustic and electroacoustic music as a subgenre of minimalism, as early as in the 1960s Young began experimenting with pitch generators and early synthesizers, which marked a turn towards the use of electronic technology. However, drone music concepts received more systematic application to the field of electronic music in the work of his contemporaries Éliane Radigue (b. 1932) and Pauline Oliveros (b. 1932). Radigue's output is unique in her almost exclusive use of a single synthesizer, the ARP 2500 modular system, during the most seminal period of her career until 2000. The work and ideas of Oliveros may be framed by the concepts of "Deep Listening" and "sonic awareness," the terms she had coined under the influence of Eastern cultures. In the 21$^{st}$ century the aesthetic of electronic drone is pursued by contemporary composers of electronic music and sound artists (e. g. Jacob Kirkegaard's *Four Rooms*, 2006).

2.5. The drone style in the context of rock, industrial and metal music

Even though the drone style is usually conceived to be the provenance of electronic and experimental (sometimes also including academic) music, its influence extended well beyond these genres to the field of popular culture and rapidly developing genres like rock music. The reason for such cross-pollination was not so much the particular curiosity of rock musicians as the cross-genre migration and collaborations between musicians with different backgrounds: for example, John Cale, who used to play in Young's band the Theatre of Eternal Music, introduced the aesthetic of extended drones to the repertoire of the Velvet Underground, which resulted in its characteristically resonant, droning, and violent sound. Later on, these influences blossomed in the genre of drone

metal, in which the aesthetic of minimal droning mixed with the scraping sound of electric guitars. Bands like Earth and Sunn O))) usually produce pieces much longer in duration than the most of conventional songs in rock or metal music, with a large amount of guitar reverb and low frequencies reminiscent of a sustained infrasound rumble.

## 3. Compositional strategies applied in the drone style

The above-mentioned field of inspirations naturally calls for the corresponding structural features of musical expression. Composers' interest in grand-scale spatial and temporal processes (such as the structure of the Universe, "the universal structure," the Harmony of the Spheres, string theory, etc.), stretching far beyond the scale of human existence, inspired the formation of sound processes that would likewise transcend the limitations of cognizable constructions.

### 3.1. Expressive sound properties of the drone style

Within the scope of this research, the analysis of drone music deals with the most distinctive features of the style, such as sustained sounds, long durations, an absence of melodic contrast and pulse, timbral complexity, and exploitation of various acoustic and psychoacoustic phenomena. In terms of composition technique music that contains drones is characterised by **slow change and static form constructed around very basic sound events**.

### 3.2. Aspects of duration and temporal organisation in drone music

The specificity of temporal dimension in pieces of drone music is perhaps their most conspicuous feature. Works composed in this style often surpass all other forms of music for their extremely long duration. Temporal dimension is usually controlled by varying the strategies of low informative value, of which the piece as an unbroken sound event is perhaps the most widespread. Among the means of temporal organisation, most commonly observed in pieces of drone music, are macro-rhythm, irregular beat resulting from the layering of slightly different frequencies, and occasional episodes of conventional rhythm. Thus the form of drone pieces may be characterised as static, slowly changing in linear succession, or divided into separate episodes.

### 3.3. Dimensions of pitch and harmonic structure in drone pieces

Taken as part of the pitch vocabulary used in drone pieces, a single tone here functions as the centre of gravity and a component of timbre. By analysing the pitch dimension in these particular works, it has been concluded that a single sound acts as **a point in the sound-noise continuum, a**

**component of timbre, and a centre of gravity**, of which gravity is the most important. The question of tuning is of equal importance, which is usually solved by choosing equal temperament or just intonation, sometimes also opting for free or chaotic intonation.

### 3.4. The expressive properties of timbre in drone pieces

In drone music, the dimension of timbre is of paramount importance. When the sounds are deprived of their attack, the auditory perception is concentrated on the overtone content, which may be classified according to the proposed theory of timbral intensity continuum, stretching between a single pure tone and white noise. It has been concluded that timbral variation in drone pieces is typically very slow and deprived of any contrast. The frequency analysis showed that these pieces usually use sounds in sub-bass and bass register, while additional frequencies are used as vehicles of timbral dynamics.

### 3.5. The significance of volume in drone pieces

Timbre is closely related to the dimension of volume. High volume levels in drone pieces, like in other genres of experimental music, enable composers to increase the effect of overtone fluctuation, to build audible overtone complexes, and to create a physical sensation of sound. Drone pieces are distinguished for very high level, or moderately high level of volume, and sometimes also smooth change of dynamics, without any perceptible contrast. The overview of sound dimensions in drone music allows us to claim that drone is the most radical trend of experimental music, synthesizing an incredibly wide range of sound dimensions and production means.

### 3.6. A combination of sound dimensions

The overall structuring of sound dimensions in drone pieces is primarily determined by the sense (or state) of vertical (static) time. The field of gravity around the central tone, as the predominant feature in most drone-based musical pieces, seems to be teeming with microdimensional sound events, which vary according to subtle fluctuations in timbre, overtone structure or volume, and would otherwise be considered as accidental or irrelevant to the fundamental structure of sound processes in conventional composition. In drone music these processes work the other way round: it is slow and almost imperceptible changes in sound dimensions that become the main object of analytical scrutiny, which may explain the impact of this music on the listener in ways unique to this genre.

To conclude this discussion about the importance of various sound dimensions in drone pieces, it must be noted that the inhibition of perception is essential to drone music, which entails

the opposite effect – an increased attention to very subtle changes in microdimensional structure of sound.

### 4. Manifestations of the drone style in the work by Mykolas Natalevičius

The elements of drone music are encountered in various works by Natalevičius. In his drone pieces, he combines the sound (produced live or pre-recorded) of various acoustic instruments with the electronic means of audio processing, or uses purely electronic means. The sustained sounds are employed here in two ways: they either become the essential building material in the construction of pieces, or occur occasionally in combination with the conventional methods of composition. Among his pieces composed in pure drone style are *A440* (2010) for sine wave oscillators, *Filtered String* (2012) for electronics, *Inside* (2013) for musical fountain and 8-channel audio recording, *Evolution 2.0* (2014) for live electronics, and *Asystole* (2015) for 4 analog synthesizers, recording and trumpet. In compositions, like Kampana (2011) for symphony orchestra, audiovisual project *Voice is a Drone* (2012), *Doppler Effect* (2014) for chamber ensemble, and *Americium-241* (2015) for symphony orchestra, the elements of drone style are combined with the conventional methods of composition.

The work by Natalevičius, especially his electronic output, has embraced a broad range of drone influences. In his orchestral music drones are employed to a lesser extent and often in combination with the stylistic elements of spectralism and sonorism. There are two types of spectralism encountered in Natalevičius's orchestral output: 1) the spectral analysis of environmental sounds (e. g. in *Kampana*) and 2) the analysis of electromagnetic spectrum and its attunement to the acoustic spectrum (e. g. in *Americium-241*).

His electronic music shows influences of Young's drone style (e. g. the use of sine wave tones in A440) and Niblock's monolithic microtonal drones (e. g. the layering of pre-recorded acoustic material and their digital processing in the *Filtered String* or linear intensification of sound in *Evolution 2.0*).

### Conclusions

1. This research, drawing extensively on the existing methods of analysis, documented data and spectral analysis, helped ascertain the origins of the drone style, to distinguish it from other related styles (such as ambient music), and to define certain compositional procedures typical of the

style. The results of this research may be significant not only in the context of musicological findings but also for the practical purposes in composition studies.

The research into composition of electronic music is an entirely new field of study, which requires a multiperspective approach, synthesizing the findings and discourses of the most varied fields of study (including aesthetics, philosophy, technology, acoustics, engineering, psychology, etc.). This may account for the interdisciplinary, synthetic character of this particular research project, but at the same time, the wider the context the more elements remain outside the scope of this investigation, thus opening the way for prospective research.

The results of this research project support the widespread opinion that drone music maximizes the importance of and gives new meaning to bourdon as compositional means. Moreover, it is not only the emancipation of bourdon as a technique, but also as a process, which places greatest emphasis on a single tone, that creates a whole new concept with much wider compass than the phenomenon of bourdon.

The drone style may be defined as a fundamental level of musical composition whose essential condition is the use of sustained sounds. Drone music differs from the ambient and other genres in its attempt to reduce the sound material to a single or very few sustained sounds that have no syntactic relations. The content of these sounds may be quite varied, but it should not be dominated by noise (as in noise music) and no syntactic (neither tonal, nor atonal) relations between sounds should be involved, unlike in ambient music (by Brian Eno and others).

2. The dominance of sustained sound in the drone style has its roots not only in the forms of archaic polyphony, but also in philosophy, natural sciences, and geophonic environment (infrasound). Compositional inspirations embraced in this style range from mystical and philosophical concepts of the Universe (Young), geophonic and biophonic material, technogenic aspects of sound, "inaudible vibrations" (from the Indian concept of *anahata nada* to infrasound, ultrasound and transformations of electromagnetic waves) to non-Western musics.

Pieces composed in the drone style were the harbingers of minimalism in music (e. g. Young's Trio for Strings, 1958). Later on these influences expanded to other genres, including academic music (Niblock, Palestine, Oliveros, etc.), rock and metal subcultures (Tony Conrad and the Faust, Sunn O))), Earth, Boris), and electronic music (Radigue, Coil, Kirkegaard).

3. The drone style is distinguished for slow, nonteleological flow of sound events, as well as a tendency towards subtle, microdimensional changes in multiple aspects of a single tone. This research has demonstrated that the treatment of sound material may vary according to the composer, but there are some typical aspects of expression articulated in specific dimensions of sound, which are as follows:

1) the temporal dimension (according to Jonathan Kramer) is dominated by "vertical" time (to use Jonathan Kramer' term) and inhibition of short-term memory aspects. It manifests itself through the use of long continuous sounds, the application of low-level information strategy (to use Bob Snyder's term) and quasi-rhythmic structures, such as macro-rhythm, irregular beat resulting from the layering of slightly different frequencies, and occasional episodes of conventional rhythm. In some specific cases the compositional idea may command the absence of audible changes. Thus mental representations of three kinds of form become deposited in long-term memory: episodic or fragmentary form, linear development, and stasis;

2) within the dimension of pitch, a single sound acts as **a point in the sound-noise continuum, a component of timbre, and a centre of gravity**, of which gravity is the most important. In drone music a discrete pitch becomes irrelevant, since there is no context, in which it acquires its value (in relation to the tonal centre or pitch class), but this in turn heightens the importance of overtone structure, as a component of timbre. Relation between the partials of timbre (or adjacent tones) may be classified as follows:

a) equal temperament (Young, Palestine);

b) free intonation, microtones (Niblock, Palestine, Young, Radigue, Oliveros, Kirkegaard);

c) just intonation and its subspecies play an important role in Young's music, where the ratios of whole numbers between the tones prevail;

d) chaotic intonation is characteristic of noise music and is quite atypical in drone pieces, where it may appear but in small fragments;

3) the dimension of timbre is of paramount importance in drone pieces, since the subtle fluctuation of partials is often conceived to be a component of timbre. The manifold nature of this dimension would complicate the detailed and subtle classification of timbral change. Therefore an alternative classification of frequency range is being proposed, based on the analysis of spectrum content within the work and taking into consideration the dominant frequencies and modes of change.

In an attempt to classify the dimension of timbre, a hypothesis of timbral intensity continuum has been proposed. However, its proper application has been delayed due to insufficient insight into how timbre is perceived in humans. The prospective development of this theory might offer a solution to the problematic taxonomy of timbre, which becomes ever more pressing given the dominance of electronic technology in the 21$^{st}$ century.

Before such accurate classification schemes have been formulated, we suggest analysing timbre by taking into consideration the more tangible aspects of duration and pitch, which become related through the above-mentioned function of sound as the centre of gravity. For this reason

many drone pieces use sounds in the lowest and middle registers, thereby strengthening the perception of a central tone. This tendency is especially notable in the works by Niblock and Palestine;

4) the dimension of volume in drone pieces is usually manifested through the use of high volume levels, which help achieve the effect of overtone fluctuation, build audible overtone complexes, and create a physical sensation of sound. These matters were clearly referenced in the spoken and written testimonies by Young, Niblock and Palestine.

4. The overall structuring of sound dimensions in drone pieces is primarily determined by the sense of "vertical" time. The field of gravity around the central tone, as the predominant feature in most drone-based musical pieces, seems to be teeming with microdimensional sound events, which vary according to subtle fluctuations in timbre, overtone structure or volume, and would otherwise be considered as accidental or irrelevant to the fundamental structure of sound processes in conventional composition.

Compositional strategies are usually aimed at derivation of specific sound vocabulary and subtle variation. In some pieces this variation occurs because of hardly controllable or uncontrollable (acoustic, physical, technical) factors (e. g. Young's *Drift Studies* use phase shifts generated by sine wave oscillators). Other pieces demonstrate more variation and even sections framed by slight changes in timbre and pitch (e. g. in Radigue's *Kyema*). However, even in such cases the static process overrides the transient significance of contrast, which is perceived for a very short moment and is no longer analysed, once it fades away from the short-term memory.

This research has opened up new vistas for the analysis of drone music, which remained unforeseeable because of the lack of systematic research. Although there were quite a few analytical deficiencies to tackle in the course of research, which occurred mainly due to the lack of analytical insight into various aspects of contemporary electronic music, the discovered reference points allowed to view the drone style in a more systematic way, to distinguish its provenance from that of the related styles, and look for the most salient, distinctive features and compositional strategies, which in effect all lead to focusing on subtle gradations and transformations of sound.

The elements of drone music have been found in various works by Mykolas Natalevičius. His electronic music often features the drone style in its pure form, while his acoustic output freely blends the elements of drone, sonorism and spectral music.

The prospective research should be conducted in the following fields:

1. Other genres of experimental electronic music, which have been studied from the standpoint of aesthetics (Toop, Demers), but they still lack more systematic analysis from the standpoints of technology and composition.

2. Information theory of composition, which would enable to define compositional principles in various levels of information density. The drone style, which mainly employs low-level information strategies, may be taken as the starting point for the analysis of more complex styles. Further stages of analysis would help arrive at better understanding of higher levels of composition. The drone style is thus seen as the pre-compositional phase of music, in which sounds are simply extended for long durations and processes of change do not constitute any formal model. Thus sound becomes the form in itself. Drone represents the lowest level of information density in music, with the sound structure acting as the accumulator of information.

3. The theory of timbral intensity continuum, which would facilitate the analysis of many electronic music styles that still resists analytical scrutiny due to the absence of adequate tools for tackling the manifold dimension of timbre. Such theory would provide definitions for forms and compositional models that have been described in inadequate terms of formalistic analysis whose taxonomy is adjusted to the structures of pitch, harmony and rhythm. It would also help embrace, in scholarly terms, the widespread processes in contemporary music that escape the purview of formalist analysis.

The above-mentioned prospects for future research would also contribute to solving the pressing issues in electronic music composition, which are now being dealt with by drawing on empirical knowledge and explications that often suffer from being speculative and poorly articulated in technological and compositional terms.