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On the Creation of Matter

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

ON THE CREATION OF MATTER FOR FULL ORCHESTRA

A thesis submitted in partial fulfillment of the
requirements for the degree of

MASTER OF MUSIC

by

Paul Wesley Poston

2011

To: Dean Brian Schriener
College of Architecture and the Arts

This thesis, written by Paul Wesley Poston, and entitled On the Creation of Matter for Full Orchestra, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this thesis and recommend that it be approved.

Paula Matthusen

David Dolata

Orlando Garcia, Major Professor

Date of Defense: March 30, 2011

The thesis of Paul Wesley Poston is approved.

Dean Brian Schriener
College of Architecture and the Arts

Interim Dean Kevin O'Shea
University Graduate School

Florida International University, 2011

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DEDICATION

I dedicate this thesis to Orlando Garcia, Paula Matthusen, and my parents. Without the support, knowledge, and influence of each of these people, I would have not been able to complete this work.

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I wish to thank Dr. Orlando Garcia and Dr. Paula Matthusen for guiding me through this process. Dr. Garcia's has completely changed my perspective of how and what music is. Because of his guidance, my compositional techniques have improved dramatically, my ideas have grown exponentially, and my knowledge of music has increased.

With the help of Dr. Matthusen, I entered into a entirely different world of musical language. I have been challenged to write electro-acoustic music, and have been encouraged to increase my knowledge of music technology.

I would also like to thank Dr. David Dolata for his help in guiding me with ideas in writing this paper. Since the beginning, these three professors have inspired me to become a better composer, individual, and scholar.

ABSTRACT OF THE THESIS
ON THE CREATION OF MATTER FOR FULL ORCHESTRA

by

Paul Wesley Poston

Florida International University, 2011

Miami, Florida

Professor Orlando Garcia, Major Professor

On the Creation of Matter is a ten-minute composition for orchestra in which I explore large-scale musical texture through the use of uncommon orchestral techniques. The piece is comprised of three major sections: the introduction of space and time, the event, and the culmination. Each section features new textures while retaining harmonic references to earlier material. Heavily influenced by the works of György Ligeti and Krzysztof Penderecki, *On the Creation of Matter* musically captures the initial stillness of space and time and follows their transformation through a major astronomical event. In *On the Creation of Matter* I use concepts first explored by Ligeti and Penderecki and manipulate them to create a fully original new work for the concert stage.

TABLE OF CONTENTS

CHAPTER	PAGE
INTRODUCTION	1
LIGETI, PENDERECKI, AND SOUND MASS	4
FORM AND TEXTURE IN ON THE CREATION OF MATTER	12
NOTATIONAL DEVICES	21
IMPORTANT SONORITES AND REOCCURING OSTINATOS	31
CONCLUSION	36
BIBLIOGRAPHY	37

LIST OF EXAMPLES

Example	Page
Example 1: Threnody for the Victims of Hiroshima. String vibrato notation.	6
Example 2: De Natura Sonoris II. Sweeping glissandi in the tin 0whistle and musical saw parts	7
Example 3: Atmosphères. A cluster chord spanning 5 octaves.	9
Example 4: A graph of On the Creation of Matter's Underlying Structure.	13
Example 5: The first ostinato in On the Creation of Matter.	14
Example 6: The first event.	15
Example 7: Micropolyphony beginning at mm. 39 in On the Creation of Matter.	16
Example 8: On the Creation of Matter. Rhythmic figures being developed from the original material in mm. 18-39.	17
Example 9: On the Creation of Matter: Slowly allargando to the second event.	19
Example 10: Squares represent to blow air rather than produce a pitch.	21
Example 11: Micropolyphony in On the Creation of Matter.	22
Example 12: Micropholyphony in Melodien.	23
Example 13: Key clicks in On the Creation of Matter.	24
Example 14: String notation in Ligeti's Ramifications.	24

Example 15: String notation in De Natura Sonoris II	25
Example 16: String notation in On the Creation of matter	26
Example 17: String Techniques used in measure 6 in Threnody for the Victims of Hiroshima.	27
Example 18: String Techniques in measures 65 - 98 of On the Creation of Matter.	27
Example 19: A line used for vibrato	28
Example 20: Other string Techniques	28
Example 21: Indications to tap of the body of the instrument.	29
Example 22: Piano strings hit with a bass drum mallet.	30
Example 23: The beginning of the ostinato.	31
Example 24: the fully developed ostinato in On the Creation of Matter.	32
Example 25: "the undisturbed space" sonority.	33
Example 26: The strings playing a tone cluster using the same notes as the low cluster in the brass section.	34
Example 27: The last repetition of the "undisturbed space" sonority.	35

INTRODUCTION

On the Creation of Matter is a work for large orchestra approximately ten minutes in duration. A Discovery Channel documentary about the creation of the universe inspired the concept for this piece, specifically, scientists' description of how the universe was born when matter and antimatter clashed in a colossal war after the Big Bang. The notion of opposites abrading one another to create something new provided the underlying principle for the composition.

In order to portray my concept of the astronomical event, I relied heavily on texture and timbre. Instead of melody and linear harmony, unique sonorities and colorful timbres are the work's main focus. Listening to compositions such as György Ligeti's *Atmospheres* and Krzysztof Penderecki's *De Natura Sonoris II*, both of which rely heavily on densities, confirmed to me that focusing on musical texture could be an effective approach to structuring a composition. These two works convey a sense of space and openness, despite the density of the dissonant cluster chords used throughout each. The following is a brief overview of my composition.

Working with the concept of Wagner's *leitmotif*, I introduce the themes of time and space in the first section of *On the Creation of Matter*. To convey the openness and nothingness of space before the Big Bang, the first measures include small

cluster chords in the strings section. The chords slowly become audible and then gently decrescendo. At the same time, low cluster tones in the brass and contrabass sections emerge as an added textural layer. Additional chords, louder dynamics, and glissandos foreshadow the coming event. The dynamics reach their loudest levels at the transition to the second major section. This second section contains the most experimental techniques; multiple instances of dense texture suggest extreme activity. The micropolyphony in the woodwind section simulates a fierce battle between two intricate forces.¹ Tapping on the strings and body of the instrument, among other string techniques reinforces the conflict with exciting noisy and unpitched sounds. The percussion writing features an ostinato that is later developed successively by the brass and woodwind sections. All that remains at the end of the segment are audible key clicks from the woodwind performers, signaling the end of the second section. The final section includes material from the opening, while preserving elements of the second section. This suggests an arch-like formal approach since the composition ends much like began.

¹David Cope describes micropolyphony in his book *Techniques of the Contemporary Composer* as a moving cluster chord in which each different instrument in play a different rhythm.

Based on David Cope's approach to vectoral analysis as described in *New Directions in Music* (2000), my analysis of *On the Creation of Matter* will cover four specific areas:²

1. A brief historical background of the musical era that informed my stylistic decisions as well as compositions and composers that influenced the compositional decisions of my piece.
2. Form and textures used in the piece.
3. A detailed analysis of traditional, experimental, and extended orchestral techniques as well as notational devices incorporated into the piece. This portion of the analysis will also address works by other composers who influenced my decisions on notating problematic areas of the composition.
4. Overview of recurring sonorities and ostinatos that dominate the work.

² David Cope, *New Directions in Music* (Prospect Heights: Waveland Press, 2001), 1-2.

LIGETI, PENDERECKI, AND SOUND MASS

The 1960s were a period of intense musical exploration. Notable composer and music philosopher John Cage became famous for his theories and for inventing aleatoric music, for which the composer uses the throw of dice or other chance procedures, such as those found in the *I Ching*, to create a new work. Cage's ground-breaking 4'33" (1952), was controversial not because it exploited indeterminacy, structurally notating silence, but rather, because it challenged audiences to question what the very essence of music was. Cage proposed that any sound could be music, and in fact, there was no such thing as silence until death. To state it simply: music was everything that made a sound.³

One of the experimental techniques that emerged during this period was Sound Mass. It consists of stripping pitch content and melody to focus solely on texture, dynamics, and timbre. Michele Edwards notes that sound mass "obscures the boundary between sound and noise."⁴ First used during the mid-1950s in pieces such as Xenakis' *Metastasis* (1953-54) and *Pithropratka I* (1955), texture-based music was most relevant in the late 1950s and early

³ *John Cage: I have nothing to say and I'm saying it*. VHS. Directed by Allan Miller. 1983; Chicago: Home Vision, 1990.

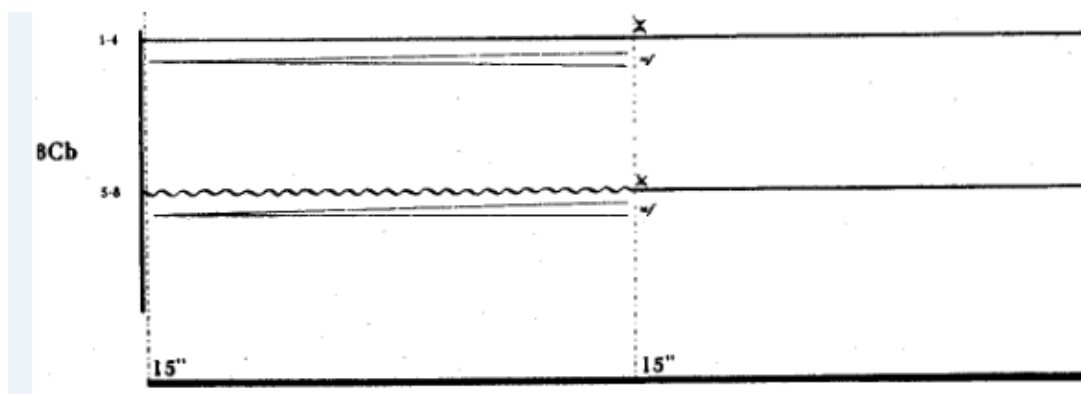
⁴ Michele Edwards, *Women and Music: A history*, (Bloomington: Indiana University Press, 2001), 326-27.

1960s. This focus on timbre, however, already characterizes music by Debussy and Edgar Varèse.⁵

While there is a large group of composers who employed the techniques I used in *On the Creation of Matter*, I will concentrate on the two who influenced my work the most. In 1959, Krzysztof Penderecki published his monumental piece 8'37" which is now well known as *Threnody to the Victims of Hiroshima*.⁶ The work propelled the young Penderecki to worldwide fame. The composition itself is emotionally wrenching. *Threnody to the Victims of Hiroshima* is scored for fifty-two string instruments and is packed with dense textures and novel extended techniques. One element of the score that immediately stands out is Penderecki's creation of large cluster chords played by the violinists, which he notates using large black blocks of ink. The performers are expected to follow the trajectory of the rising or falling motion of the blocks by sliding in the indicated direction. Above each string, Penderecki uses a symbol to indicate what kind of technique he wants the string players to employ. In Example 1, the wavy line indicates for the string player to add more vibrato.

⁵ Erickson Roberts, *Sound Structure in Music* (Berkeley: University of California Press, 1975), 18 and 21.

⁶ Tim Rutherford-Johnson, "Taruskin, Vol.5, page 220," *The Rambler*, June 12, 2007 <http://johnsonsr Rambler.wordpress.com/2007/06/12/taruskin-vol5-page-220/>.



Example 1: *Threnody for the Victims of Hiroshima*. String vibrato notation.⁷

Threnody for the Victims of Hiroshima contains large, dissonant clusters, sweeping glissandi, and extreme registers that, together with the title, evoke death and destruction. These techniques can generate an abiding tension that endures to the last chord, a cluster for tutti strings. The sonority begins *fortississimo* and slowly fades away until no sound is left.

Over a span of five years, Penderecki wrote *De Natura Sonoris I* and *De Natura Sonoris II*. These pieces share several interesting characteristics with *Threnody*, including similar notational devices, use of quarter-tones, and extreme dynamic ranges and registers. Like *Threnody*, *De Natura Sonoris I* and *II*, explore timbral and orchestral effects. For Example, the opening of *Sonoris II* contains an eerie glissando that begins with the

⁷ Krzysztof Penderecki, *Threnody for the Victims of Hiroshima* (Van News: Deshon Music Publishing, 1961).

highest pitches of a tin whistle and a musical saw. The glissandi persist until the performers reach the lowest range of their instruments' register. More than just an orchestral effect, the glissando becomes an important structural element of the composition, appearing three times, as shown in Example 2.

Example 2: *De Natura Sonoris II*. Sweeping Glissandi in the tin whistle and musical saw parts⁸

Another of Penderecki's compositions that I found particularly suggestive for my own work is *The Awakening of Jacob*, composed in 1974 for the Prince of Monaco, and inspired by Genesis 28:16 ("When Jacob awoke from his sleep, he thought, 'Surely the LORD is in this place, and I was not aware of it.'").⁹ Using twelve ocarinas among other instruments, Penderecki, in my opinion, creates a surreal texture. *The*

⁸ Krzysztof Penderecki, *De Natura Sonoris No 2*, (Mainz: Schott, 1972).

⁹ Chua Gan Ee, "A Polish Requiem The Dream of Jacob," <http://inkpot.com/classical/pendrekiem.html>. (Accessed Feb. 5, 2011).

Awakening of Jacob was written during Penderecki's transition from cluster-filled sound mass pieces to a more melodic, neo-romantic style of composition. Adrian Thomas has commented on this:

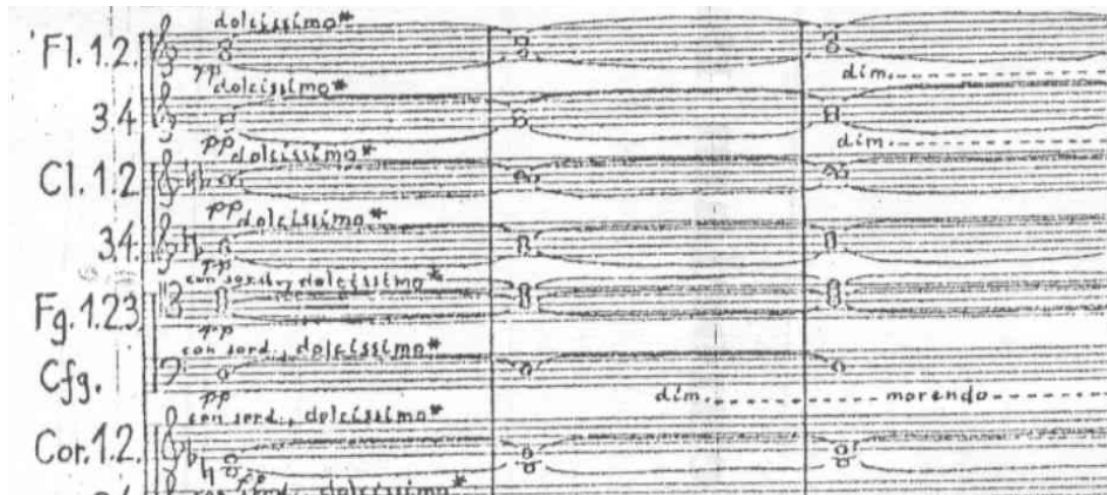
Turning-points were the orchestral *Przebudzenie Jakuba* ('The Awakening of Jacob'), scored additionally for twelve ocarinas, and, more particularly, the First Violin Concerto, written for Isaac Stern. While retaining some earlier methods, the concerto marks out future territory in its discursive, narrative structure and in its focus on two intervals, the semitone and tritone. The semitone has been the unmistakable cornerstone of Penderecki's vocabulary throughout his career, and unresolved chains of semitones, commonly separated by a tritone, have been the most conspicuous aspect of his melodic style since the mid-1970s. This *idée fixe* was crucial to Penderecki's development of his own brand of neo-romanticism.¹⁰

After the 1980s, Penderecki stopped using sound mass as a compositional technique.

In 1961, György Ligeti wrote *Atmosphères*, one of his most famous works. Written for large orchestra, the composition contains an immense cluster chord that spans nearly five octaves¹¹. At the beginning, every member of the orchestra plays a different pitch covering the entire range of a standard keyboard (Example 3).

¹⁰ Adrian Thomas, "Penderecki, Krzysztof," http://www.oxfordmusiconline.com.ezproxy.fiu.edu/subscriber/article/grove/music/21246?q=penderecki&source=omo_t237&source=omo_gmo&source=omo_t114&search=quick&hbutton_search.x=0&hbutton_search.y=0&pos=1&start=1#firsthit. (Accessed Feb. 5, 2011).

¹¹ Charles Lockwood, "Musical Pluralism in the 1960s: Luciano Berio and György Ligeti." <http://www.nyu.edu/student-life-1/student-events/essays/musical-pluralism-in-the-1960s-luciano-berio-and-gyorgy-ligeti> (Accessed Feb. 6, 2011).



Example 3: *Atmosphères*. A cluster chord spanning 5 octaves.¹²

In *Atmosphères*, the counterpoint between each instrument is so dense that it becomes impossible to hear each individual part, creating musical stasis.¹³ Like Penderecki in his sound mass compositions, Ligeti's foregoes melody, harmony, and comprehensible rhythm, so as to concentrate only on texture and timbre.¹⁴

György Ligeti termed this style of musical texture "micropolyphony." This texture is created by writing densely compacted counterpoint for two or more instruments. Ligeti broadens the compositional application of his theory of

¹² György Ligeti, *Atmosphères*, (Vienna: Universal Edition, 1963), 1.

¹³ Peter Laki, "György Ligeti, *Atmosphères*," http://www.carnegiehall.org/article/box_office/events/evt_6189_pn.html?selecteddate=02042009 (Accessed Feb. 6, 2011).

¹⁴ Larry Sitsky, *Music of the Twentieth-Century Avant-garde: A Biocritical Sourcebook* (Westport: Greenwood Publishing Group, 2002), 256.

micropolyphony further in the works *Lux Aeterna* (1966) and *Lontano* (1967).

In *Ramifications*, written in 1968-69 for string orchestra, Ligeti explores sound mass in a different context. He divides the orchestra into two separate groups and instructs the first to tune their violins a quartertone above A 440. The second group tunes normally.¹⁵ This difference in intonation is the basis for the piece. Ligeti tightly restricts the playing range for the performers. For Example, there are no leaps larger than a perfect fourth between adjacent pitches in the Violin I grouping. Moreover, each performer plays a different subdivision of a beat. For instance, the first violinist may play eight thirty-second notes to a beat, while the second violinist plays septuplets, the violist quintuplets, and the cellist triplets.

Unlike the quartertone-based sonorities that Penderecki explored in works like *Threnody to the Victims of Hiroshima*, Ligeti expected that the string players in Group I, tuned a quartertone higher, would likely slide back to the normal intonation of the second group of strings. Richard Troop describes Ligeti's aim in *Ramifications* as "smudge[ing] the harmony":

A continuous Escher-like game is being played with the listener's capacity to sort out what is going on; a couple of moments where suddenly only one ensemble is playing, and harmonic 'normality' is restored, have an almost shocking

¹⁵ Gyorgy Ligeti, *Ramifications* (Mainz: Schott, 1970), 1.

effect - one realizes how much one's ear has been taking for granted.¹⁶

By 1971, like Penderecki, Ligeti was transitioning from large-scale sound mass pieces to works with melodic passages. *Melodien* was composed during this transitional period. Unlike the previously mentioned works, this piece has no clear cluster chords, no sudden stops, and no interval signals. With this piece, Ligeti wanted to get away from what made Ligeti recognizable.¹⁷ By 1972, Ligeti had finished composing his *Double Concerto* for flute, piano and orchestra; and what would perhaps be his final farewell to the sound mass music of the 1960s, *San Francisco Polyphony* in 1974.¹⁸

¹⁶ Richard Troop, *György Ligeti* (London: Phaidon Press, 1999), 134-35.

¹⁷ Troop, 137-138.

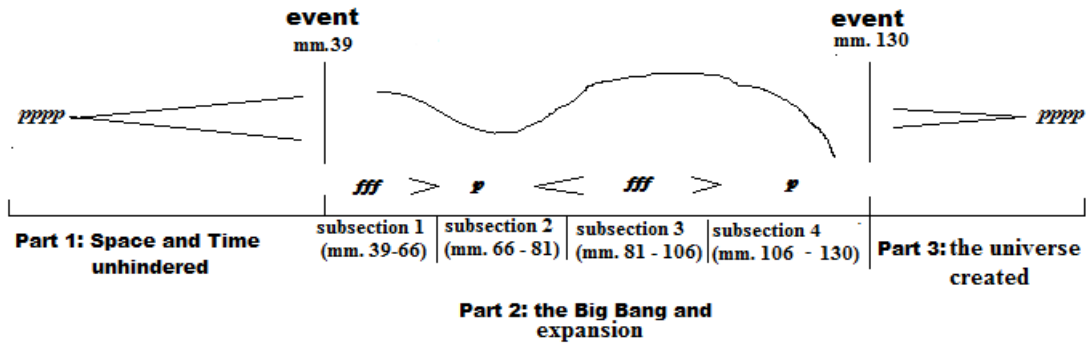
¹⁸ Troop, 150

FORM AND TEXTURE IN ON THE CREATION OF MATTER

A common theme in all the composition mentioned in the previous chapter is that texture and timbre superseded the rhythm, harmony, and melody. All of them chart new timbral and orchestral territory. While texture and timbre-based music significantly influenced my composing *On the Creation of Matter*, it is not the only reason I used the sound mass technique.

Because Ligeti and Penderecki's works suggested an image of the universe, using sound mass as the basis of my work seemed appropriate. To me, large clusters of sound, further emphasized by a variety of textures and timbres, reflect the vast endlessness and beauty of the universe.

The catalyst for *On the Creation of Matter* is the Big Bang and the expansion of the universe shortly afterward. The events are reflected in the work's formal structure. I chose to divide the piece into three major parts. Each part represents an event that occurred before, during, and after the Big Bang. Example 4, below, is a graph that illustrates the form more clearly.



Example 4: A graph of *On the Creation of Matter's* Underlying Structure.

A unifying event occurs between each of the major sections. While each event is no more than a beat or measure long, each is important in articulating the end of sections.

In the second section, there are four subsections (Example 4, above, shows these subsections). In addition to overall dynamic level, each subsection is distinguished by the creation of a new texture. The transition to each new subsection is accomplished seamlessly. New textures replace previous textures by emerging from the background and gradually evolving into foreground material (see mm. 69-100). In some cases, the previous material is transformed into new textures (mm. 107 to 120).

I wrote the first section to introduce material that, to me, conveys undisturbed space. It reflects the events before the Big Bang, the nothingness. The section serves both as an introduction and a build up to the next section.

On the Creation of Matter begins with woodwind players blowing wind through their instruments without producing any tone. The string players generate a quiet, dense cluster chord, playing *senza vibrato* and slowly fading to *niente*. Playing with mutes, the brass section sounds low tone clusters that crescendo and decrescendo. The dynamic level of the cluster chords increase as the piece progresses. Percussionists and wind players take on a greater role as the work unfolds.

Further along this first section, orchestral activity increases and the texture becomes more complex. String players add vibrato, the woodwind section plays louder with each passing sonority, and the material in the brass section also becomes progressively louder, albeit *senza vibrato*. A woodblock and cello pizzicato create a sparse rhythmic pattern that develops into a prominent ostinato later on in the piece (Example 5).



Example 5: The first ostinato in *On the Creation of Matter*.

After an *accelerando* and *crescendo* to *fortississimo*, we hear the first event cited in Example 4 and mm. 39. It consists of percussionists striking the strings of a piano, a cymbal, and

a gong (Example 5). While it is only one beat long, the percussionists allow the sound of the instruments to decay over time.

Example 6: The first event.

This event represents the explosion of the Big Bang while signaling the beginning of the second section.

In the second section, I thoroughly explore extended instrumental techniques. Immediately audible is micropolyphony (Example 7) in the woodwind section. Combining staccato and legato playing adds variety to the texture.

The image shows a page of a musical score with a tempo marking of quarter note = 90. The score consists of 14 staves, divided into woodwind and string sections. The woodwind section includes two flutes (Fl. 1, Fl. 2), two oboes (Ob. 1, Ob. 2), four clarinets (Cl. 1, Cl. 2, Cl. 3, Cl. 4), and two bassoons (Bb. 1, Bb. 2). The string section includes two violins (vi. 1, vi. 2), two violas (vi. 1, vi. 2), two cellos (cl. 1, cl. 2), and two double basses (db. 1, db. 2). The music is characterized by dense, overlapping lines and a strong upward motion, typical of micropolyphony. The score is written in a single system with a vertical bar line in the middle.

Example 7: Micropolyphony beginning at mm. 39 in *On the Creation of Matter*.

Accompanying the woodwinds, the violinists, playing a loud cluster chord, add pressure to their bows, creating a scratching sound. As the woodwind part ascends to the highest registers, the strings section, playing a tone cluster, follows this upward motion. Additionally, the viola and cello sections tap on their instruments.

The percussionists begin playing foreground material. Using mainly unpitched percussion, they develop the ostinato mentioned earlier (cf., Example 5). The rhythmic counterpoint of sixteenth-

notes against triplets as well as eighths-notes is shown in Example 8 and marks a transition from micropolyphony to a new texture.

The image shows a musical score for three percussion parts, labeled 'perc. 2', 'perc. 3', and 'perc. 4'. The score is divided into two measures by a vertical bar line. Above the first measure, the text 'ringing transmission drum' is written. Above the second measure, the text 'ringing transmission drum' is written again, with a '16' below it. The first measure shows rhythmic patterns for each part, with 'perc. 2' having a series of eighth notes, 'perc. 3' having a series of eighth notes, and 'perc. 4' having a series of eighth notes. The second measure shows a more complex rhythmic pattern for 'perc. 2' with a series of eighth notes and a '16' below it, and 'perc. 4' having a series of eighth notes with a '3' below it. The score is written on three staves, with 'perc. 2' on the top staff, 'perc. 3' on the middle staff, and 'perc. 4' on the bottom staff.

Example 8: *On the Creation of Matter*. Rhythmic figures being developed from the original material in mm. 18-39.

First used by Krzysztof Penderecki in *Threnody for the Victims of Hiroshima*, this texture consists of violinists playing multiple extended techniques in rapid succession. For Example, the violinist may pluck the highest note possible, then bow on the bridge, tap the violin, and repeat the process many times. At least one large section performs these actions simultaneously, resulting in shifting, quiet and percussive timbre.

The new string technique preceded by a lone tone cluster produced by contrabassists creates a change of both pacing and timbre, clearly representing the beginning of a subsection in the piece (see mm. 66). By measure 75, the entire string orchestra joins in the quasi-improvisational technique.

The brass section overpowers the strings, thereby opening the next subsection (mm. 81). Transforming the ostinato played earlier in the percussion, the brass eventually develops it into a large cluster chord. They play *secco* and *staccato* which allow the distinct rhythm of each part to be heard clearly. Sounding *fortissimo*, they are joined by the woodwind section forming an even larger cluster chord before eventually fading away (mm. 98 to 106). The climax of the piece is reached as the woodwind section, still performing the ostinato, is joined by a chorus of strings players.

A further transformation of the ostinato occurs as the string orchestra *decrescendos* until inaudible, leaving only the woodwinds. Gradually, each woodwind player begins clicking the keys of their instrument percussively rather than producing a pitch. Coincident with the *allargando*, the amount of key clicks decrease until there is only one every few moments. The second event, the beginning of the third major section, is marked by a period of silence (mm. 130).

The climax includes every instrumentalist with the exception of the percussionists. In the first major section of the piece, the percussion is used as a transition to the first event. Similarly, it functions as a transitional device to a subsection of the second section (mm. 56-69). As a result, it was not used in the climax, lest it be taken as the signal for another transition.

..... $\bullet = 40$

The image shows a musical score for five staves. The top staff has a tempo marking of a quarter note equal to 40. The second staff from the top features a series of rhythmic patterns, including eighth notes with beams and accents, and some notes with slurs. The third staff has a series of eighth notes with beams. The fourth and fifth staves have fewer notes, mostly quarter notes and half notes. The score is divided into measures by vertical bar lines.

Example 9: *On the Creation of Matter*: Slowly allargando to the second event.

Instead, this transition is generated through percussive-like sounds in the woodwinds, an obvious reference to the earlier use of the percussion. As Example 9 above shows, the event is silence.

The final section of the work is entirely devoted to the resolution of the climax. Recalling the introduction of the piece, the brass section plays a low tone cluster. The higher woodwind players generate a small tone cluster at the top of their register and chromatically move downward towards G4. The clarinetists and bassoonists, playing a tone cluster at the bottom of their register, chromatically rise to G4. Elements of the second section are invoked as the violinists tap their instruments and woodwinds click the keys of the instruments. The string section concludes the piece with same chromatic motion mentioned in the woodwinds above (The high strings glissandi

downward and low strings glissandi upward). The woodwind players blow wind through the instruments and *On the Creation of Matter* ends exactly the way it began.

NOTATIONAL DEVICES

Notation is an integral part of music composition. In every century, composers have developed and devised new notational systems to explain what they want the performer to do; the rigor and precision of much twentieth- and twenty-first century music, however, is nearly unprecedented. In Western music, one would have to go back to the isorhythmic motet of the 14th-century mannerists for comparable notational complexity.

On the Creation of Matter includes both traditional and contemporary musical notation depending on the situation at hand. The first measures feature a contemporary notational device shown in Example 10: small squares positioned in the middle of the staff represent blowing into the instrument without producing any pitch.

Flute 1

Blow air. Produce no pitch.

ppp

Flute 2

Blow air. Produce no pitch.

ppp

Example 10: Squares represent to blow air rather than produce a pitch.

Rhythms are included, indicating to the players how long they should blow air before taking a breath. This ensures that there is always sound. Each player is ascribed a different rhythm to

further hinder the performers' taking breaths simultaneously, thereby inadvertently creating a gap in the overall sound.

Micropolyphony is used in only one section of the piece. Written for the woodwind players, this section contains extremely complex rhythmic counterpoint in combination with melodic figures that rise and descend to both extremes of a given instrument's register.

The image shows a musical score for five woodwind parts: B♭ Clarinet 2, B♭ Clarinet 3, B♭ Clarinet 4, Bassoon 1, and Bassoon 2. The score is written in a complex, dense style characteristic of Ligeti's micropolyphony. Each part features intricate rhythmic patterns and melodic lines that are highly interwoven. The notation includes numerous slurs, ties, and dynamic markings, indicating a high level of technical difficulty and a focus on texture and timbre over traditional melody. The parts are arranged in a vertical stack, with B♭ Cl. 2 at the top and Bsn. 2 at the bottom.

Example 11: Micropolyphony in *On the Creation of Matter*.

The excerpt in Example 11 closely follows Ligeti's own notational practices as seen in compositions such as *Melodien*, *Ramifications*, *Lontano*, and *Atmosphères*. By way of comparison, consider Example 12 from Ligeti's *Melodien*. The very complex rhythmic writing is immediately noticeable. The tempo maintains a slow place in Ligeti's music, which is something not found in *On the Creation of Matter*. As opposed *Melodien*, I chose to maintain a faster tempo as to create smooth transitions between the various subsections.

The image displays a page of handwritten musical notation for György Ligeti's 'Melodien'. The score is written on multiple staves, including a grand staff at the top and several individual staves below. The notation is highly complex, featuring dense clusters of notes, intricate rhythmic patterns, and various dynamic markings such as 'p', 'pp', 'f', and 'mf'. There are also performance instructions like 'tutti più ord.' and 'solo a poco sul piano'. The handwriting is dense and detailed, characteristic of Ligeti's manuscript style.

Example 12: Micropolyphony in *Melodien*.¹⁹

As mentioned previously, *On the Creation of Matter* calls for key clicks to be produced by the woodwinds. The performers execute this technique in specified rhythms, thereby creating a percussive texture without producing tone. To specify key clicks, an x is used as the notehead of a stem rather than the usual round, black ellipse. "key clicks," written above the each woodwind part eliminates any doubt about whether the technique should be used or not (see Example 13 below).

¹⁹ György Ligeti, *Melodien* (Mainz: Schott, 1972).

Example 13: Key clicks in *On the Creation of Matter*.

When writing for strings, Ligeti often uses traditional notation to score each part of an instrumental section, thereby increasing the specificity of what each performer is to play. Example 14 illustrates the complexity of Ligeti's writing.

Example 14: String notation in Ligeti's *Ramifications*.²⁰

I do use traditional string notation, but very rarely. Rather, I chose to use techniques developed by Penderecki, as I

²⁰ György Ligeti, *Ramifications* (Mainz: Schott, 1970).

found his string writing to be more efficient for the sound I was trying to create.

In the first two sections, I notated the strings using Penderecki's method. Most of Penderecki's works in the 1960s included sound mass. Among these many works were *Threnody*, *Anaklasis*, *Emanations*, and *Polymorphia*. For these pieces, Penderecki notated strings in blocks with the length of the blocks corresponding to the time the players keep playing clusters. Example 15 shows this notation.

The image shows a musical score for strings, labeled 'Example 15'. It features two systems of staves. The first system has four staves, and the second system has two staves labeled 'vb 1' and 'vb 2'. A vertical dashed line separates the two systems. Below the staves, there are two horizontal lines with brackets indicating time intervals: the first is labeled '15'' and the second is labeled '17''. The notation includes various musical symbols such as notes, rests, and dynamic markings like 'pp' and 'p'. The overall style is characteristic of Penderecki's 'sound mass' notation, where individual notes are less important than the overall texture and duration of the clusters.

Example 15: String notation in *De Natura Sonoris II*

At the bottom of each staff, Penderecki notates the pitches he wants to use. Most of my string notation uses this approach except, I write the individual pitches above the staff rather than below it (Example 16).

The image shows two systems of musical notation for strings. Each system has a top staff with a treble clef and a bottom staff. The bottom staff is mostly obscured by a thick black bar, but it contains dynamic markings: *pppp* in the first measure, *ppp* in the second measure, and a fermata symbol in the third measure. The top staff shows a few notes in the first measure of each system.

Example 16: String notation in *On the Creation of matter*

Like Penderecki, I indicate the exact pitches I want by using an additional staff. While Penderecki chooses to prescribe times at the bottom of each system, such as 15", 17" and so forth, I use standard meters to indicate the timing of sustain and release, for two reasons. First, the woodwind players can more easily determine when to take breaths and when to sustain. Secondly, some parts, especially in later portions of the piece, have very specific entrances.

I used Penderecki's methods of notation in the second section. In this part, the strings play a texture modeled after the second minute of *Threnody*, shown in Example 17.

Example 17: String Techniques used in measure 6 in *Threnody for the Victims of Hiroshima*.²¹

To achieve a similar texture in my piece, I simply mimicked the string writing of Example 17.

Example 18: String Techniques in Measures 65 - 98 of *On the Creation of Matter*.

²¹Krzysztof Penderecki, *Threnody for the Victims of Hiroshima*.

I have also incorporated other string techniques that are modeled after Penderecki's notation.



Example 19: A line used for vibrato

For instance, Example 19 instructs the strings players to incorporate wider vibrato. Example 20 shows several of the other symbols, and their meanings, which I used throughout the *On the Creation of Matter*.

\square = arpeggio on for strings behind the bridge

\square = play between bridge and tailpiece

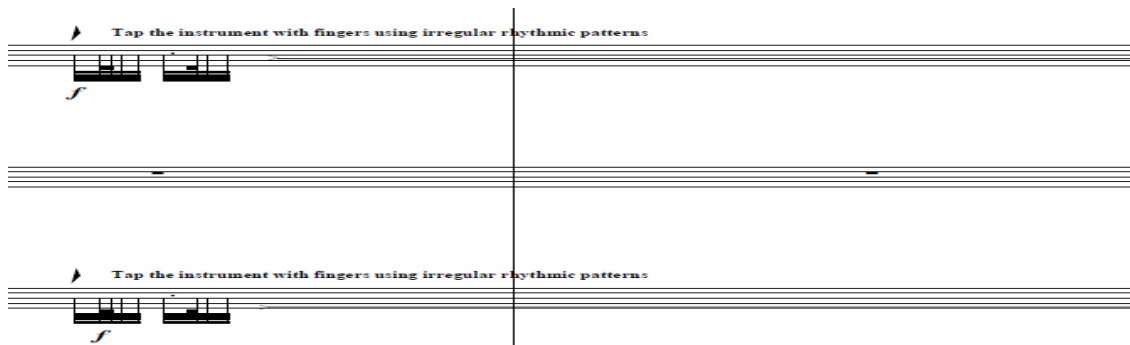
ζ = very rapid non-rhythmsized tremolo

Example 20: Other string Techniques

Other more common techniques I use are *sul ponticello* and *col legno battuto*.

A final string technique requiring unconventional notation in *On the Creation of Matter* is the tapping of string instruments. Neither Penderecki nor Ligeti used this technique extensively. *Threnody* does have a few instances where tapping on the instrument occurs; however, Penderecki does not use the technique by itself to create a texture.

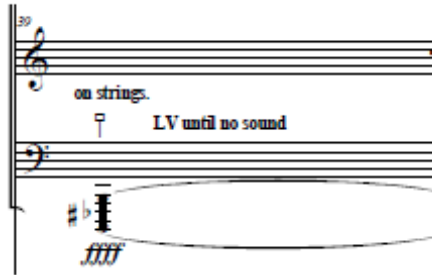
The technique calls for the performer to tap on the instrument lightly using quick, irregular rhythm patterns.



Example 21: Indications to tap of the body of the instrument.

I notate a small rhythmic idea and then draw a long line to indicate the length of time the technique should be played. Like Penderecki does for most of his techniques, I place a symbol above the staff to indicate tapping on the instrument, a technique which is repeated in the piece.

One last unconventional technique utilized in *On the Creation of Matter* is proscribed for the piano. A percussionist uses a soft bass drum mallet to hit the strings inside the piano (Example 22).



Example 22: Piano strings hit with a bass drum mallet.

Otherwise, the piece uses traditional notation devices.

IMPORTANT SONORITIES AND RECURRING OSTINATOS

One of the major components featured in the *On the Creation of Matter* is a constantly recurring ostinato. The ostinato results from the rhythmic interplay first produced by the percussionists and cellists (see Example 23). Gradually, different rhythms are produced eventually creating a contrapuntal effect.

The image shows a musical score for three staves: Perc. 1, Perc. 2, and Vc. 2. The score is for measures 25-27. Perc. 1 and Perc. 2 are marked 'L.V.' (Loudly) and Vc. 2 is marked 'glock. L.V.' (glockenspiel Loudly). The music consists of a repeating rhythmic pattern of eighth notes. Perc. 1 and Perc. 2 play a sequence of eighth notes: G4, A4, B4, C5, B4, A4, G4. Vc. 2 plays a sequence of eighth notes: G2, A2, B2, C3, B2, A2, G2. The pattern repeats every two measures.

Example 23: The beginning of the ostinato.

This ostinato is used as a transitional device three times in the piece: First, at the end of the first section (mm. 33-39); second, as a transition to the second subsection of the second section; and lastly, as a transition into the final section (mm. 113 - 120). Each time, the ostinato becomes longer and more pronounced as the number of instruments performing it increase. This is especially true when at the climax of the piece.

The second time the ostinato is performed; it is produced by the percussion (Example 5). Each rhythm is played on a different unpitched instrument with the exception of one performer using dampened crotales. This second ostinato includes more instruments as well as a greater variety of rhythms. The final ostinato passage contains almost the entire woodwind and brass sections, each part playing a different pitch and rhythm.

These pitches create a large cluster chord and are only used to create a texture.

The image displays a musical score for Example 24, titled "the fully developed ostinato in *On the Creation of Matter*". The score is organized into two systems of staves. The first system includes parts for Flute 1, Flute 2, Piccolo 1, Piccolo 2, Oboe 1, Oboe 2, Horn 1, Horn 2, Horn 3, Horn 4, Trumpet 1, and Trumpet 2. The second system includes parts for Violin 1, Violin 2, Viola, Cello, Double Bass, Trombone 1, Trombone 2, and Tuba. The score shows a complex rhythmic pattern with various note values and rests across all instruments, illustrating the fully developed ostinato.

Example 24: the fully developed ostinato in *On the Creation of Matter*.

Example 24 shows the woodwind section heard in the foreground, while the brass is in the background. At one point, all twelve of the woodwind players are playing a different rhythm and note (mm. 104).

Eventually, the woodwind section begins to fade out. One by one the performers exit until one player is left clicking the keys of the flute. After this, the ostinato is no longer played again in the piece.

Another important recurring sonority arises in the brass and contrabass sections.

The musical score for Example 25 consists of five staves. The first two staves are marked "con sordino with scraps" and feature *pppp* dynamics. The third staff is marked "con sordino" and features *ppp* dynamics. The fourth and fifth staves are also marked "con sordino" and feature *pppp* dynamics. The score is divided into three measures. The first measure shows the initial notes and dynamics. The second measure shows a change in dynamics to *ppp* and the introduction of a triplet in the third staff. The third measure shows the final notes and dynamics, with a *n* marking at the end of each staff.

Example 25: "the undisturbed space" sonority.

This sonority, shown in Example 25, is present the entire first section, referred to in the second, and reappears throughout the last section. The low tone cluster functions not only as a continual reference point for the piece, but also an important theme. More of a pitch motive than a musical theme per se, the sonority in Example 25 is my figurative representation of the undisturbed universe.

The sonority is played softly at first. As the work progresses and more material emerges, the sonority grows louder. The pitches, however, never change. This pattern continues until the first event.

Once in the middle of the second section, the contrabass players refer to the cluster chord.



Example 26: The strings playing a tone cluster using the same notes as the low cluster in the brass section.

Although the rest of the orchestra is marked *pianissimo* at this point, the cluster chord sonority sounds *forte*. This was because I felt it would be best to maintain the dynamic from the

sonority's earlier manifestation in the brass. When it is heard again in the final section (Example 27),

The image shows a musical score for six brass instruments: Horn 1, Horn 2, Trumpet, Trombone 1, Trombone 2, and Tuba. The score is divided into two measures by a vertical bar line. The first measure contains notes with dynamics markings: *< mf*, *mp*, and *n*. The second measure contains notes with dynamics markings: *pp* and *n*. The Horn 1 and 2 parts are in bass clef, the Trumpet part is in treble clef, and the Trombone 1, 2, and Tuba parts are in bass clef. The notes are connected by slurs, indicating a sustained or legato performance.

Example 27: The last repetition of the "undisturbed space" sonority.

the cluster is played progressively softer until the piece ends.

CONCLUSION

In embarking upon *On the Creation of Matter* I chose to write a piece for orchestra that would permit me to explore the new orchestral techniques I absorbed during my studies with Orlando Garcia and to experiment with these techniques using a larger palette of instruments. I also had the opportunity to study compositions by Penderecki and Ligeti extensively. Their works from the 1960s informed my use of orchestral textures and encouraged me to explore the works of other contemporary composers.

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On the Creation of Matter

Score

Paul Poston

lontano $\bullet = 40$

1 Piccolo
2 Piccolo
1 Flute
2 Flute
3 Flute
4 Flute
1 Oboe
2 Oboe
1 Clarinet in Bb
2 Clarinet in Bb
3 Clarinet in Bb
4 Clarinet in Bb
1 Bassoon
2 Bassoon
1 Horn in F
2 Horn in F
3 Horn in F
4 Horn in F
1 Trumpet
2 Trumpet
1 Trombone
2 Trombone
3 Trombone
Tuba
Percussion
Piano
1-6 Violin I
7-12 Violin I
1-6 Violin II
7-12 Violin II
1-3 Viola
4-6 Viola
1-3 Cello
4-6 Cello
1-3 Contrabass
4-6 Contrabass

This musical score is for the piece "On the Creation of Matter" and is the second page of the score. It features a large ensemble of instruments. The woodwind section includes Piccolo (1 and 2), Flutes (1, 2, 3, 4), Oboes (1, 2), Clarinets (1, 2, 3, 4), Bassoons (1, 2), Horns (1, 2, 3, 4), Trumpets (1, 2), Trombones (1, 2, 3), and Tuba. The percussion section includes woodblock and gong. The string section includes Violins I (1-6 and 7-12), Violins II (1-6 and 7-12), Violas (7-12), Violas (7-12), Cellos (1-3 and 4-6), and Double Basses (1-3 and 4-6). The score is written in a common time signature and features a dynamic range from *pppp* to *ppp*. The woodwind and string parts have melodic lines with various articulations and dynamics. The percussion part includes a woodblock and gong. The score is divided into measures by vertical bar lines, and the dynamics are indicated by slanted lines and text.

This page contains the musical score for the third page of the piece "On the Creation of Matter". The score is arranged in a standard orchestral format with multiple staves for each instrument family. The instruments listed on the left side of the page are: Picc., Fl. (1-4), Ob. (1-2), Cl. (1-4), Bsn. (1-2), Hrn. (1-4), Tpt. (1-2), Tbn. (1-3), Tuba, Perc., Pno., Vln I (1-6, 7-12), Vln II (1-6, 7-12), Vla. (7-12), Vc. (1-3, 4-6), and Cb. (1-3, 4-6). The score includes various musical notations such as notes, rests, dynamics (e.g., *pp*, *p*, *mp*, *mf*, *f*, *sfz*), and performance instructions like "senza sord.", "woodblock", "crotales L.V.", "glock. L.V.", "simile", "pizz.", and "sul pont.". The page number "15" is visible at the top of several staves, indicating the measure number. The overall layout is clean and professional, typical of a printed musical score.

This musical score is for the piece "On the Creation of Matter" and is marked with the tempo instruction *accelerando*. The score is divided into two systems, with the first system starting at measure 25 and the second system starting at measure 35. The instrumentation includes:

- Picc.** (Piccolo): 1 part, starting at measure 25.
- Fl.** (Flutes): 1 and 2 parts, starting at measure 25. A note "Flute 1 and 2 to piccolo." is written above the staff at measure 35.
- Ob.** (Oboes): 1 and 2 parts, starting at measure 25.
- Cl.** (Clarinets): 1, 2, 3, and 4 parts, starting at measure 25.
- Bsn.** (Bassoons): 1 and 2 parts, starting at measure 25.
- Hrn.** (Horns): 1, 2, 3, and 4 parts, starting at measure 25.
- Tpt.** (Trumpets): 1 and 2 parts, starting at measure 25.
- Tbn.** (Trombones): 1, 2, and 3 parts, starting at measure 25.
- Tuba**: 1 part, starting at measure 25.
- Perc.** (Percussion): 1, 2, 3, and 4 parts, starting at measure 25. Specific instructions include "L.V.", "glock. L.V.", "crotales L.V.", and "glock. L.V.".
- Pno.** (Piano): 1 part, starting at measure 25.
- Vln I** (Violin I): 1-6 and 7-12 parts, starting at measure 25. The 7-12 part has a thick black line indicating a sustained note.
- Vln II** (Violin II): 1-6 and 7-12 parts, starting at measure 25. The 7-12 part has a thick black line indicating a sustained note.
- Vla.** (Viola): 1-6 and 7-12 parts, starting at measure 25. The 7-12 part has a thick black line indicating a sustained note.
- Vc.** (Cello): 1-3 and 4-6 parts, starting at measure 25.
- Cb.** (Double Bass): 1-3 and 4-6 parts, starting at measure 25.

The score features various dynamic markings such as *mf*, *f*, *ff*, *ppp*, *mp*, *n*, and *f cresc.*. The *accelerando* instruction is placed at the end of the first system.

On the Creation of Matter

$\bullet = 60$ *accelerando*

$\bullet = 75$

1
Picc.

2

1
2
Fl.

3
4

1
Ob.

2

1
2
Cl.

3
4

1
Bsn.

2

1
2
Hrn.

3
4

1
2
Tpt.

1
2
Tbn.

3

Tuba

1
Perc.

2
3
4

1
2
Pno.

1-6
Vln I

7-12

1-6
Vln II

7-12

7-12
Vla.

1-3
Ve.

4-6

1-3
Cb.

4-6

crotales
L.V.

L.V.

L.V.

crotales
L.V.

glock.
L.V.

metal tube

f cresc.

f

f

f

f

On the Creation of Matter

6

$\text{♩} = 90$

This musical score is for the sixth movement of a symphony, titled "On the Creation of Matter". It is in 6/8 time with a tempo of quarter note = 90. The score is divided into several sections of instruments:

- Woodwinds:** Piccolo (Picc.), Flute 3 solo (Fl.), Flute 4 solo (Fl.), Oboe (Ob.), Clarinet 1 (Cl.), Clarinet 2 (Cl.), Clarinet 3 (Cl.), Clarinet 4 (Cl.), Bassoon 1 (Bsn.), and Bassoon 2 (Bsn.).
- Brass:** Horns 1-4 (Hm.), Trumpets 1-2 (Tpt.), Trombones 1-3 (Tbn.), and Tuba.
- Percussion:** Gong, Crash Cymbal, and Piano (Pno.).
- Strings:** Violin I (Vln I), Violin II (Vln II), Viola (Via.), Violoncello (Vc.), and Contrabass (Cb.).

The score begins with a dynamic marking of *f* (forte) and includes various articulations such as slurs and accents. The percussion section includes specific instructions for the gong and crash cymbal. The piano part has a note "on strings, LV until no sound". The string sections (Violin I, Violin II) have a section marked *f* (forte) starting around measure 39, with a note "all violins" above the staff. The score is written on multiple staves for each instrument, with some instruments having multiple parts (e.g., Clarinet 1-4, Bassoon 1-2, Trombones 1-3, Violin I 1-6, Violin II 1-6, Viola 7-12, Vc. 1-3, Cb. 4-6).

This page contains the musical score for the eighth page of the piece "On the Creation of Matter". The score is arranged in a standard orchestral format with multiple staves for each instrument family. The instruments listed on the left are: Piccolo (2 staves), Flute (4 staves), Oboe (2 staves), Clarinet (4 staves), Bassoon (2 staves), Horn (4 staves), Trumpet (2 staves), Trombone (3 staves), Tuba (1 staff), Percussion (4 staves), Piano (2 staves), Violin I (2 staves), Violin II (2 staves), Viola (2 staves), and Cello (2 staves). The score begins with a dynamic marking of *ff* (fortissimo) and includes various musical notations such as slurs, accents, and articulation marks. A specific instruction "sul pont." is present in the Violin I and Violin II staves. The page number "8" is located at the top left, and the title "On the Creation of Matter" is centered at the top.

This page of the musical score, titled "On the Creation of Matter" and numbered 9, contains the following instruments and parts:

- Picc.** (Piccolo): 1 and 2 staves, featuring complex rhythmic patterns with triplets and sixteenth notes.
- Fl.** (Flute): 1 and 2 staves, with melodic lines and triplets.
- Ob.** (Oboe): 1 and 2 staves, mostly silent with some activity in the final measure.
- Cl.** (Clarinet): 1, 2, 3, and 4 staves, all silent.
- Bsn.** (Bassoon): 1 and 2 staves, all silent.
- Hrn.** (Horn): 1, 2, 3, and 4 staves, all silent.
- Tpt.** (Trumpet): 1 and 2 staves, all silent.
- Tbn.** (Trombone): 1, 2, and 3 staves, all silent.
- Tuba**: 1 staff, silent.
- Perc.** (Percussion): 1, 2, 3, and 4 staves. The first staff includes a "claves" part with a rhythmic pattern.
- Pno.** (Piano): 1 and 2 staves, all silent.
- Vln I** (Violin I): 1-6 and 7-12 staves, all silent.
- Vln II** (Violin II): 1-6 and 7-12 staves, all silent.
- Vla.** (Viola): 7-12 staff, silent.
- Ve.** (Violoncello): 1-3 and 4-6 staves, all silent.
- Cb.** (Contrabass): 1-3 and 4-6 staves, all silent.

This page of a musical score, titled "On the Creation of Matter", contains staves for various instruments. The woodwind section includes Piccolo (Picc.), Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), and Bassoon (Bsn.). The brass section includes Trumpet (Tpt.), Trombone (Tbn.), and Tuba. The percussion section (Perc.) includes a metal tube and a brass drum. The piano (Pno.) and string sections (Vln I, Vln II, Vla., Vc., Cb.) are also present. The score begins at measure 36. The woodwinds and strings play complex rhythmic patterns, while the brass and percussion provide a steady accompaniment. Dynamics such as *f* and *ff* are indicated throughout the score.

This page of the musical score, titled "On the Creation of Matter" (page 11), contains the following parts and staves:

- Picc.**: Piccolo, staves 1 and 2.
- Fl.**: Flute, staves 1, 2, 3, and 4.
- Ob.**: Oboe, staves 1 and 2.
- Cl.**: Clarinet, staves 1, 2, 3, and 4.
- Bsn.**: Bassoon, staves 1 and 2.
- Hrn.**: Horn, staves 1, 2, 3, and 4.
- Tpt.**: Trumpet, staves 1 and 2.
- Tbn.**: Trombone, staves 1, 2, and 3.
- Tuba**: Tuba, staff 1.
- Perc.**: Percussion, staves 1, 2, 3, and 4. The second staff includes the instruction "ringing transmission drum".
- Pno.**: Piano, staves 1 and 2.
- Vln I**: Violin I, staves 1-6 and 7-12.
- Vln II**: Violin II, staves 1-6 and 7-12.
- Vla.**: Viola, staves 7-12.
- Ve.**: Violoncello, staves 1-3 and 4-6.
- Cb.**: Contrabasso, staves 1-3 and 4-6.

This musical score page, titled "On the Creation of Matter", is page 12 of the composition. It features a large ensemble of instruments. The woodwind section includes Piccolo (1 and 2), Flute (1, 2, 3, 4), Oboe (1, 2), Clarinet (1, 2, 3, 4), and Bassoon (1, 2). The brass section consists of Horn (1, 2, 3, 4), Trumpet (1, 2), Trombone (1, 2, 3), and Tuba. The percussion section includes triangle, snare drum (1-4), and tom-toms (1-6). The piano part is divided into right and left hands. The string section includes Violin I (1-6 and 7-12), Violin II (1-6 and 7-12), Viola (7-12), Violoncello (1-3 and 4-6), and Contrabass (1-3 and 4-6). The score is written in a common time signature and includes various musical notations such as rests, notes, slurs, and dynamic markings. The dynamic markings include *pp* (pianissimo), *f* (forte), and *mp* (mezzo-piano). Performance instructions like "pizz." (pizzicato), "arco" (arco), "batt." (battuto), and "ord." (ordinario) are used for the strings. The woodwinds and strings play complex rhythmic patterns, often with triplets and sixteenth notes. The piano part features a steady accompaniment with some melodic lines. The percussion provides a rhythmic foundation with snare and tom patterns. The strings play a mix of sustained notes and rhythmic figures, with some parts marked "simile" (simile).

1
Picc.

2

1
2
Fl.

3
4

1
Ob.

2

1
2
Cl.

3
4

1
Bsn.

2

1
2
Hrn.

3
4

1
2
Tpt.

1
2
3
Tbn.

Tuba

1
Perc.

2

3

4

Pno.

1-6
Vln I

7-12

1-6
Vln II

7-12

7-12
Via.

7-12

1-3
Ve.

4-6

1-3
Cb.

4-6

ord. batt. sul pont. simile

This page of a musical score, titled "On the Creation of Matter", page 14, contains staves for various instruments. The instruments listed on the left are: Picc. (Piccolo), Fl. (Flute), Ob. (Oboe), Cl. (Clarinet), Bsn. (Bassoon), Hrn. (Horn), Tpt. (Trumpet), Tbn. (Trombone), Tuba, Perc. (Percussion), Pno. (Piano), Vln I (Violin I), Vln II (Violin II), Vla. (Viola), Vc. (Violoncello), and Cb. (Cello). The score includes musical notation such as rests, notes, and dynamic markings like *f* (forte) and *secco*. The *secco* marking appears above the Horn and Trombone staves, and the *f* marking appears below the Trombone and Tuba staves. The page is otherwise mostly blank, with rests in most staves.

1 Picc.

1 2 Fl.

1 2 Ob.

1 2 3 4 Cl.

1 2 Bsn.

1 2 Horn.

3 4

1 2 Tpt.

1 2 3 Tbn.

Tuba

1 2 Perc.

3 4

Pno.

1-6 Vln I

7-12

1-6 Vln II

7-12

Vla.

7-12

1-3 Vc.

4-6

1-3 Cb.

4-6

Measures 1-29: Rests for all instruments.

Measure 30: Horns (1-2) and Trumpets (1-2) begin playing a rhythmic pattern of eighth notes. Dynamics include *f* and *secco*.

Measure 31: Trombones (1-3) and Tuba begin playing a rhythmic pattern of eighth notes. Dynamics include *f* and *secco*.

Measures 32-39: Continuation of the rhythmic patterns in the Horn, Trumpet, Trombone, and Tuba sections.

Measures 40-48: Rests for all instruments.

This page of the musical score, titled "On the Creation of Matter", page 16, contains the following parts and details:

- Woodwinds:** Piccolo (Picc.), Flute (Fl.), Oboe (Ob.), Clarinet (Cl.), Bassoon (Bsn.).
- Brass:** Trumpet (Tpt.), Trombone (Tbn.), Tuba.
- Strings:** Violin I (Vln I), Violin II (Vln II), Viola (Vla.), Violoncello (Vc.), Contrabass (Cb.).
- Percussion:** Perc.
- Piano:** Pno.

Key performance instructions include:

- Dynamic:** *ff* (fortissimo) is used throughout the score.
- Tempo/Character:** *div. sul pont. senza vibrato* (divisi, sul ponticello, senza vibrato) is indicated for the string sections.
- Decrescendo:** *ff decrescendo* markings are present in the string parts.
- Articulation:** Trills and triplets are used in the woodwind parts.

This page of the musical score contains the following parts and markings:

- Picc.**: Piccolo, measures 1-5.
- Fl.**: Flute, measures 1-5, with "key clicks" markings.
- Ob.**: Oboe, measures 1-5, with "key clicks" markings.
- Cl.**: Clarinet, measures 1-5.
- Bsn.**: Bassoon, measures 1-5.
- Hrn.**: Horn, measures 1-5.
- Tpt.**: Trumpet, measures 1-5.
- Tbn.**: Trombone, measures 1-5.
- Tuba**: Tuba, measures 1-5.
- Perc.**: Percussion, measures 1-5.
- Pno.**: Piano, measures 1-5.
- Vln I**: Violin I, measures 1-6.
- Vln II**: Violin II, measures 1-6.
- Vla.**: Viola, measures 1-12, with markings: "div. sul pont. senza vibrato", "ff", and "decrescendo".
- Vc.**: Cello, measures 1-3.
- Cb.**: Contrabass, measures 1-3.

This page of the musical score, titled "On the Creation of Matter" (page 18), is marked *allargando*. It features a complex orchestration with the following parts:

- Picc.** (Piccolo): Two staves, both playing rapid sixteenth-note patterns with triplets and "key clicks" markings.
- Fl.** (Flute): Two staves, playing similar rapid sixteenth-note patterns with "key clicks" markings.
- Ob.** (Oboe): Two staves, playing rapid sixteenth-note patterns with "key clicks" markings.
- Cl.** (Clarinet): Four staves, playing rapid sixteenth-note patterns with "key clicks" markings.
- Bsn.** (Bassoon): Two staves, playing a slower, more melodic line with "key clicks" markings.
- Hrn.** (Horn): Four staves, currently silent.
- Tpt.** (Trumpet): Two staves, currently silent.
- Tbn.** (Trombone): Three staves, currently silent.
- Tuba**: One staff, currently silent.
- Perc.** (Percussion): Four staves, currently silent.
- Pno.** (Piano): Two staves, currently silent.
- Vln I** (Violin I): Two staves (1-6 and 7-12), playing long, sustained notes with "n" markings.
- Vln II** (Violin II): Two staves (1-6 and 7-12), playing long, sustained notes with "n" markings.
- Vla.** (Viola): One staff (7-12), playing long, sustained notes with "n" markings.
- Vc.** (Violoncello): One staff (1-3), playing long, sustained notes with "n" markings.
- Cb.** (Cello): Two staves (1-3 and 4-6), currently silent.

On the Creation of Matter

$\text{♩} = 70$ *molto allargando*

116

Picc. 1 2

Fl. 1 2 3 4

Ob. 1 2

Cl. 1 2 3 4

Bsn. 1 2

116

Hrn. 1 2 3 4

Tpt. 1 2

Tbn. 1 2 3

Tuba

116

Perc. 1 2 3 4

Pno.

116

Vln I 1-6 7-12

Vln II 1-6 7-12

116

Vla. 1-3 4-6

116

Cb. 1-3 4-6

$\text{♩} = 56$ *molto allargando*

to flute

$\text{♩} = 40$

This page contains the musical score for measures 121 through 124 of the piece 'On the Creation of Matter'. The score is organized into several systems of staves, each representing a different instrument or section of the orchestra. The tempo is marked as *molto allargando* with a metronome marking of $\text{♩} = 56$. A rehearsal mark 'to flute' is placed above the Piccolo and Flute staves. The score concludes with a new tempo marking of $\text{♩} = 40$. The instruments and their parts are as follows:

- Picc.** (Piccolo): Two staves (1 and 2), both playing a rhythmic pattern of eighth notes.
- Fl.** (Flute): Two staves (1 and 2), both playing a rhythmic pattern of eighth notes.
- Ob.** (Oboe): Two staves (1 and 2), both playing a rhythmic pattern of eighth notes.
- Cl.** (Clarinet): Four staves (1, 2, 3, and 4), all playing a rhythmic pattern of eighth notes.
- Bsn.** (Bassoon): Two staves (1 and 2), both playing a rhythmic pattern of eighth notes.
- Hrn.** (Horn): Three staves (1, 2, and 3), all playing a sustained note with a *mp* dynamic.
- Tpt.** (Trumpet): Two staves (1 and 2), both playing a sustained note with a *mp* dynamic.
- Tbn.** (Trombone): Three staves (1, 2, and 3), all playing a sustained note with a *mp* dynamic.
- Tuba**: One staff, playing a sustained note with a *mp* dynamic.
- Perc.** (Percussion): Four staves (1, 2, 3, and 4), all playing a sustained note with a *mp* dynamic.
- Pno.** (Piano): Two staves (1 and 2), both playing a sustained note with a *mp* dynamic.
- Vln I** (Violin I): Two staves (1-6 and 7-12), both playing a sustained note with a *mp* dynamic.
- Vln II** (Violin II): Two staves (1-6 and 7-12), both playing a sustained note with a *mp* dynamic.
- Vla.** (Viola): Two staves (1-6 and 7-12), both playing a sustained note with a *mp* dynamic.
- Vc.** (Violoncello): Two staves (1-3 and 4-6), both playing a sustained note with a *mp* dynamic.
- Cb.** (Cello): Two staves (1-3 and 4-6), both playing a sustained note with a *mp* dynamic.

This musical score page, numbered 22, is titled "On the Creation of Matter". It features a complex orchestration with multiple staves for various instruments. The score includes dynamic markings such as *pp*, *mp*, *mf*, and *ppp*, along with performance instructions like "click any two keys using unrhythmic tremolo" and "con sordino". The instruments listed on the left include Piccolo (Picc.), Flutes (Fl.), Oboes (Ob.), Clarinets (Cl.), Bassoons (Bsn.), Horns (Hm.), Trumpets (Tpt.), Trombones (Tbn.), Tubas, Percussion (Perc.), Piano (Pno.), Violin I (Vln I), Violin II (Vln II), Viola (Vla.), and Cello (Vc.). The score is written in a standard musical notation with various clefs and time signatures. The page is divided into systems, with some instruments having multiple staves. The bottom of the page shows the beginning of the next page, with measures 1-3 and 4-6 for the Cello and Viola parts.

This page of the musical score, titled "On the Creation of Matter" and numbered 23, contains the following instruments and parts:

- Picc.** Piccolo (1 and 2 staves)
- Fl.** Flute (1, 2, 3, 4 staves)
- Ob.** Oboe (1, 2 staves)
- CL.** Clarinet (1, 2, 3, 4 staves)
- Bsn.** Bassoon (1, 2 staves)
- Hrn.** Horn (1, 2, 3, 4 staves) with performance instructions: *con sordino with scraps*, *pppp*, *ppp*, and *pppp*.
- Tpt.** Trumpet (1, 2 staves)
- Tbn.** Trombone (1, 2, 3 staves) with performance instructions: *con sordino*, *pppp*, *ppp*, and *pppp*.
- Tuba** (1 staff)
- Perc.** Percussion (1, 2, 3, 4 staves)
- Pno.** Piano (1 staff)
- Vln I** Violin I (1-6 and 7-12 staves)
- Vln II** Violin II (1-6 and 7-12 staves)
- Vla.** Viola (1-3 and 7-12 staves)
- Vc.** Violoncello (1-3 and 4-6 staves)
- Cb.** Contrabass (1-3 and 4-6 staves) with performance instructions: *pppp*, *ppp*, and *n*.

The score features complex musical notation including slurs, ties, and dynamic markings. The woodwinds and brass sections are marked with *pppp* and *ppp* dynamics, while the strings play sustained passages with various articulations. The percussion and piano parts are mostly silent, indicated by rests.



Music



Architecture + The Arts

FLORIDA INTERNATIONAL UNIVERSITY

FIU MUSIC UPCOMING EVENTS

*In Partial fulfillment of the Requirements
For the Degree of Masters of Music in
Music Composition
From the studio of Orlando Jacinto Garcia*

Graduate Composition Recital

MON | 28 MAR 2011 | 7:30PM
HERBERT AND NICOLE WERTHEIM
PERFORMING ARTS CENTER
RECITAL HALL

Paul Poston

Conceptual Sketch No. 2

Written using the program Max/Msp/Jitter, in *Conceptual Sketch No. 2* I explore sound in a spatial context. Originally written for an octophonic (8 speaker) set up, each sound is designated a specific speaker and programmed to jump between random speakers and at random instances. The sounds are also programmed to change pitch and oscillate quicker or slower depending on the directions I provide.

Three Considerations

Three Considerations is a composition in which I examine three distinct themes of human interaction with nature. The first movement, Meditation, includes both the natural tones of the flute as well as the element of the human voice. Apart from playing on the keys in the conventional manner, the pianist also occasionally plucks the strings.

The second movement, which will not be heard, contains a series of interruptions. This was written to represent the constant disagreements between nature and humanity.

Finally, in Considerations, I express the humans attempt to absolve and correct all the wrong she has done to nature

Conceptual Sketch No. 1

Inspired by Iannis Xenakis' landmark piece Concrete PH, one of the first pieces to derive its musical material from a single source, Conceptual Sketch No. 1 was written to explore his idea in a longer context. In the work, only two concrete sounds and piano are used. The only gestures in the piece, other than the electronics, consist of the pianist plucking the strings inside the piano.

Can Sticks Break Cultural Fences?

Children are the ones that often drag a stick across a fence. They are also the ones that are least likely to consider cultural barriers when playing with other children. What can we learn from children? *Can Sticks Break Cultural Fences* was written in part to ask this question. I made recordings of the sounds of wood dragging against many different fences located around Miami. Depending on the fences height, what type of fence it is (metal, wood, and others), and how quickly you drag the stick against it, one can get a different timbre. This piece is an exploration those timbres and a representation of the cultural melting pot that is Miami.

On Morality

On Morality is the first piece I wrote during my studies at FIU. The piece is an exploration of the timbres that each of the different instruments included in the work can make. Among other techniques, the work includes multiphonics in the clarinet, tapping on the piano, and a myriad of different pizzicatos from the violin. The composition was written while I was studying the works of Luciano Berio and Iannis Xenakis.

About the composer

Paul Poston (b. 1986) has been composing since 2008. In 2009 he was awarded the Lloyd Taliaferro Memorial Scholarship in composition. He graduated with a BM in Music Composition/Theory from the University of Texas at Arlington under the direction of Dr. George Chave. In 2009, Mr. Poston accepted a teaching assistantship at Florida International to study Dr. Orlando Jacinto Garcia. Along with acoustic music, he additionally studied electronic music with Dr. Paula Matthusen. Mr. Poston was a finalist of the DuoSolo Emerging Composers Competition, and as a result, will receive a Premier of his work *Three Considerations* in Cortana, Italy at the end of June.

Conceptual Sketch No. 2 (2010)

live electronics, Paul Poston

Three Considerations (2010)

Flute, Joseph Saenz
Piano, Daniel Manoui

Conceptual Sketch No. 1 (2009)

Piano and Tape, Paul Poston

Can Sticks Break Cultural Fences? (2011)

Tape

On Morality (2009)

Clarinet, Adam Sugarman
Violin, Paul Tulloch
Piano, Daniel Manoui
Conductor, Mike Guzman