

A Convergence Op. 14

by

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of the requirements for the degree of
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Dedication

This composition is dedicated to my very good friend, Michael A. Villa, and our greatest elder—nature.

Acknowledgements

I would like to first and foremost express my deepest love and appreciation toward my parents. Beginning with my father: Dad, you have supported my musical endeavors since day one. From the moment my interest began to the present moment, you have never stopped believing in me, guiding me, and pushing me to be the best I can be. You have given me invaluable insight into life, both directly and indirectly. Even though you initially questioned whether this could be a suitable career, you still gave me the opportunity to explore what became an inseparable part of my existence. I owe my strength, determination, discipline, commitment, and work ethic to you. The small and big things you made me do during my younger, formative years—even those I once hated—gave me the tools to succeed in any endeavor.

To my mother: thank you for always being unconditionally understanding, supportive, compassionate, loving, and present whenever I needed you. Whether it was in the early hours of the morning or the late hours of the evening—you were always there. Similarly to my father, you have given me so much insight into life, both directly and indirectly. It did not matter how much you struggled in your own life; your focus was never placed on yourself, but always first and foremost on your children. This unconditional love, which is an essence of your being, is beyond inspiring, and I hope to achieve at least a small amount of it as I get older.

To my siblings: thank you, Andrew, Michael, April, and June, for providing words of encouragement or simply participating in my journey by messaging me or calling me. In many ways, many of your calls and messages—whether they carried importance or not—were very much needed during times when I could not express how stressed I was. The simple act of calling or messaging me was enough to resolve much turmoil during critical moments of the degree. Thank you for alleviating my anxiety and being present.

Furthermore, to my younger brother Andrew: dude, we started our musical journey at the same time—at ages seven and eleven. Our childhood consisted of playing in a metal band—legitimately, all of our youth consisted of playing shows and writing music almost every day of the week. You played a big part in my musical development. We share a bond that not many people will ever experience; not only are we siblings, but we have a much stronger connection because of music. We played like we could read each other's minds, something I never felt with anyone else. Thank you for always being there.

To my best friend and brother, Edward G. Chavarin, of essentially twenty-five years! I do not think I have ever expressed this to you, but what better way to etch it into history than here. You are the reason I do what I do. We met when we were five, were separated because of a change of schools, and then you came back in the fifth grade. When I saw you for the first time since kindergarten, I instantly remembered you, but I was also intrigued by the shirt you were wearing—it was a Pantera shirt! We all made fun of you—it was something us immature kids had no idea was actually an amazing metal band that pushed boundaries and was a hell of a

reckoning force in the metal world. The music you introduced me to—metal—gave me the tools to be a leader and not a follower, a supporter and not a bully, an open-minded individual and not a closed-minded one, and most importantly, you gave me a kind of unconditional friendship that I had never experienced before. It was real and genuine. Thank you, compa!

To my friends Spurgeon Rice and John Lanier: you both have been incredible friends for many reasons. Firstly, thank you for dealing with my knucklehead behavior and stubbornness at times—I know it can be difficult to deal with! Secondly, thank you for always challenging my theories, claims, and musical decisions. Out of all the people I have learned from, you both are probably at the top of the list for rigorously challenging me and helping me become the best musical version of myself. You never let me posit a claim or make a general statement without ensuring that I conducted the necessary research. Additionally, thank you for providing different perspectives and playing devil’s advocate when I needed to be challenged.

Lastly, I want to thank my mentors and friends: John M. Kennedy, Bright Sheng, Evan Chambers, and Erik Santos. You all have been a formidable force and have mentored me to be the best musical version of myself. Apart from being a big part of my musical development, you all have fueled me with knowledge that goes beyond the sphere of music. To Dr. Kennedy: thank you for ultimately being the reason my mind was opened to a realm of music that completely changed my perspective on what music is and can be. To Bright Sheng: thank you for providing amazing insight into the structural layout of my work. To Evan Chambers: dude, thank you for always challenging me, for providing deep insight into the philosophical conundrums I faced, for your friendship, and for your patience when my artistic stubbornness made its way into our lessons. To Erik Santos: dude, thank you for all the amazing and insightful conversations where you allowed me to speak freely and unfiltered in any direction, helping me create conciseness in my logic.

Table of Contents

Dedication	ii
Acknowledgements	iii
Instrumentation	vi
Performance Notes	vii
Notations	viii
Abstract	x
<i>A Convergence Op. 14</i>	
I. M42: Formation	1
II. Collapse, Inception of (e)Strella	30
III. GW150914	42

Instrumentation

Full Score in C

Fixed Media

1 Flute

1 Clarinet in B-Flat

1 Alto Saxophone in E-Flat

1 Tenor Saxophone in B-Flat/ Baritone Saxophone in E-Flat

1 Percussionist

32" Timpani + Large Cymbal (bell down on membrane)

32" Timpani (Stand Alone)

Vibraphone

Large Gong

Crotales

Snare Drum

1 Piano

1 Solo Classical Guitar

2 Violins

1 Viola

1 Violoncello

1 Contrabass

Performance Notes

The conductor will need to follow a click-track to ensure the ensemble matches the fixed media.

For the Fixed Media:

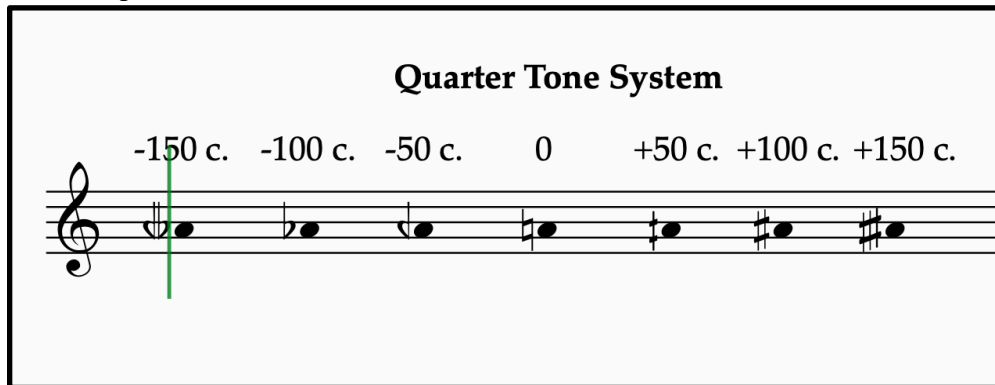
1. Must acquire a laptop that has the capability of running a simple audio project.
2. Use any DAW (i.e., Logic Pro X, Ableton Live 12, Avid Pro Tools, etc.) that is most comfortable for the ensemble organizer.
3. Must use an audio interface to send the click-track audio to the conductor (e.g., Focusrite Scarlett 2i2, PreSonus AudioBox USB 96, Behringer UMC204HD, etc.). The choice is at the discretion of the ensemble organizer, but it must have at least one output for the conductor.
4. The conductor must use open-back headphones to ensure they can hear both the fixed media and the ensemble.
5. Contact the composer at jeremy.esquer.composer@gmail.com to receive the stems (i.e., the audio files containing the fixed media and click tracks).

Setting Up the DAW for the Fixed Media:

1. Make sure that the interface is connected to the laptop.
2. Open the DAW and make sure your audio inputs and outputs are set to the chosen interface. Every DAW is different, but for the most part, this setting should be under “Audio Settings.”
3. Insert the stems (i.e., audio files). There should be three files: (1) the fixed media, (2) click tracks, and (3) vocal cues. When inserting the audio files, ensure the “warp” feature is unchecked to avoid altering the tempo. Every DAW has its own method for importing stems, so confirm they are imported correctly.
4. Make sure to set the interfaces outputs 1/2 (for the fixed media) to FOH (i.e., Front of House) and outputs 3/4 for the click track and vocal cues. Connect the headphones to outputs 3/4 and route them (the channel for the conductor) through a headphone amp to ensure sufficient volume, as the interface’s rear outputs may not provide enough power.
5. At this point, the setup is finished. Go ahead and mix the output for the conductor to ensure the click tracks and vocal cues are loud enough but still allowing the ensemble and fixed media to be heard through the open-back headphones.

Notations

1. A note on quarter tones:



- a. A quarter tone is the intervallic size of 50 cents. In other words, half of a semitone.
 - b. One recommendation I offer is to have a tuner on hand but also referencing documents that I can send for quarter tone fingerings.
2. Scordatura:
 - a. This is primarily for the solo classical guitar. As you will notice, the E (1st string), G (3rd string), and A (5th string) are flattened by a quarter tone (i.e., 50 cents).
 - b. The score and part are written as if the guitar was tuned in its regular tuning for ease of reading. In other words, what is being shown on the score and part is not what is being heard.
 3. Bis. = Bisbigliando or also known as a timbral trill.
 - a. The performer should determine the correct fingerings to alter the timbre of the given pitch by alternating between two different fingerings that produce the same note.
 4. Flt. = flutter tongue
 5. Boxed Notehead
 - a. If presented with a boxed notehead (i.e., a square-shaped notehead), the performer must sing that pitch.
 - b. If it is not possible to sing the note at the given register, please sing it in the register that is most comfortable.
 - c. Additionally, the boxed notehead will be sung and played simultaneously, with the same pitch an octave higher (shown with a regular notehead).
 - d. The effect is a sung note combined with the pitch played on the instrument, creating a disturbance in the pitches.
 6. Triangle notehead
 - a. The performer should play their highest note possible.
 7. Harmonic Glissando

- a. As the name implies, the player will start on the specified node and perform a harmonic glissando to the following note.
- 8. Regular Glissando
 - a. Start on the specified pitch, hold the pitch long enough for it to speak, then glissando to the next pitch, ensuring it also receives a long enough duration so the pitch can speak.

Abstract

A Convergence, Op. 14, I. M42: Formation, II. Collapse, Inception of (e)Strella, III. GW150914 is a three-movement classical guitar concerto, accompanied by a medium-sized ensemble and fixed media, that explores a framework I call Translational Composition, realized through Polytempic Polymicrotonality and supported through AI Research Tool ChatGPT-5.

The aforementioned methodology follows these steps: (1) AI-assisted research to synthesize literature outside the composer's expertise and to extract relevant numerical factors that will function as Identity Markers (IMs) from selected natural phenomena; (2) consultation with subject-matter experts to verify the accuracy and contextual validity of the acquired knowledge. The ideal method of consultation would be more on a level of collaboration, where the subject-matter expert provides the IMs, and the AI-assisted portion serves to help the composer develop a stronger connection to the material. This would reduce error, since the composer is not necessarily an expert outside their respective field; (3) use of the provided mapping formula to translate empirical values into microtonal pitches:

$$f(x) = f_{min} \times \left(\frac{f_{max}}{f_{min}} \right)^{\frac{\log_{10}(x/x_{min})}{\log_{10}(x_{max}/x_{min})}},$$

(4) once the microtonal pitches have been acquired, the composer must either use all of them within a tuning system, if there are enough, or develop a tuning that relates independently to each main pitch; (5) once all the pitch material is acquired, Polytempic Polymicrotonality must be used as the means of composition in order to facilitate the use of tuning systems that will more than likely differ from one another.

By using this methodology, the piece seeks to depict the collision of two black holes—an event observed by the LIGO and Virgo collaboration on September 14, 2015. The first movement depicts the Orion Nebula, a nursery for birthing stars. The second movement portrays the birth of a star and its eventual death. The third and final movement depicts the black hole formed by the star's demise and concludes with the depiction of the observed data of a black hole merger, namely the gravitational waves the merger produced.

Guitar Concerto
Written for **Michael Villa**
Accompanied by a Medium-Sized Ensemble
and
Fixed Media

A Convergence Op. 14

I. M42: Formation II. Collapse, Inception of (e)Strella III. GW150914

Composed by **Jeremy Esquer**
Composition Date **December 19, 2024**

I. M42: Formation

♩ = 60

EMPTY MEASURES FOR CUE-CLICK

CLICK TRACK STARTS

AUDIO CUE/FIXED MEDIA

Flute

Clarinet in B $\flat$

Alto Saxophone

Tenor Saxophone

Timpani 32" + Cymbal & Pedal

Piano

Solo Classical Guitar

Violin 1

Violin 2

Viola

Violoncello

Contrabass

1 2 3 4 1 2 3 4

X

Timp. 32" + Cym. (Large), bell down
friction mallet

Pedal

HI
MID
LOW

Scordatura
E - E $\flat$ (-50 c.)
G - G $\flat$ (-50 c.)
A - A $\flat$ (-50 c.)

♩ = 60

1 2 3 4 5 6 7

2
44
4ORION NEBULA ENTRANCE
(FIXED MEDIA)

The sounds heard can be described as pulsating oscillations.

3
4

boxed notehead = singing

no vib.

f

bis.

no vib.

bis.

f

no vib.

bis.

f

To Vib.

Vibraphone

fff

mute with hand

ppp gentle

8th 1

ff

XI

ff

XI

VIII

no vib.

mp

no vib.

sul tasto

no vib.

sul tasto

no vib.

LH pizz. no vib. arco

f

mp

8 9 10 11 12 13 14

ORION NEBULA Pt. 2 (FIXED MEDIA)

The sounds heard can be described as pulsating oscillations.

3/4 4/4

Fl. frail, eerie *pp* no vib. *f* frail, eerie bis.

Cl. frail, eerie *pp* *mp* frail, eerie *pp* *mp* no vib. bis. *f*

Alto Sax. frail, eerie *pp* frail, eerie *pp* *mp* no vib. bis. *f*

Ten. Sax. frail, eerie *pp* no vib. bis. *f* frail, eerie

Vib. pitch bend w/ mallet *mf* pitch bend w/ mallet

Pno. *mf* *f* *ppp* gentle

S. Gtr. XI VIII *mf* *ff* *mf*

Vln. 1 3/4 4/4 *mf* *mp*

Vln. 2 *mp*

Vla. *mf* *mp*

Vc. *mf* *f*

Cb. LH pizz. *f* *p* ord.

15 16 17 18 19 20 21

5
44
45
4

Fl. frail, eerie ord. *mp* *f* *mp* *f* *mp* *f* *mp*

Cl. frail, eerie bis. ord. bis. *mp* *mp* *mp* *f* *mp* *f* *mp* *f* *mp* *f*

Alto Sax. *f* *mp* *f* *mp* *f* *mp* *f* *mp*

Ten. Sax. frail, eerie ord. *mp* *mp* *mp* *f* *mp* *f* *mp* *f* *mp* *f* To Bari. Sax.

Vib. To Timp. Timpani

Pno. *mf*

S. Gtr. * V ② ③ ④ ⑤ ⑥ IV ③ ④ ⑤ ⑥ V ② ③ ④ ⑤ ⑥ I *ff*

Vln. 1 *pp*

Vln. 2 *pp* no vib. *mf*

Vla. ord. *p* *mf*

Vc. ord. *p* *mf*

Cb. *mf*

22

23

24

25

26

27

**ORCHESTRAL ECHOES
(FIXED MEDIA)**

The sound heard can be described as a mass of sound amassing from the depths of space. The "wubbing" effect can be described as the gas clouds in space moving around.

Measures 28-33 of the score for 'ORCHESTRAL ECHOES (FIXED MEDIA)' by John Cage. The score is for a 5/4 time signature and includes parts for Flute, Clarinet, Alto Saxophone, Baritone Saxophone, Timpani, Piano, String Quartet, Violin 1, Violin 2, Viola, Violoncello, and Contrabass. The score features various musical notations including dynamics (ff, mp, mf, p, pp), articulation (pizz., arco, sul G, sul D, sul A, sul G sul D), and performance instructions (To Vib., Vibraphone). A text box at the top explains the 'wubbing' effect.

[illegible]

The sound heard can be described as space warping and coalescing to form a unified galactic cluster; the emergence of a protostar begins.

45

The musical score is written for a symphony orchestra. The instruments and their parts are as follows:

- Fl. (Flute):** Features a melodic line with trills and triplets, starting *fp* and ending *fff*. A note indicates to "Bend into quarter tones. Does not need to be exact in this case."
- Cl. (Clarinet):** Features a melodic line with trills and triplets, starting *fp* and ending *fff*. A note indicates to "Bend into quarter tones. Does not need to be exact in this case."
- Alto Sax. (Alto Saxophone):** Features a melodic line with trills and triplets, starting *fp* and ending *fff*. A note indicates to "Bend into quarter tones. Does not need to be exact in this case."
- Bari. Sax. (Baritone Saxophone):** Features a melodic line with trills and triplets, starting *fp* and ending *fff*.
- Timp. (Timpani):** Features a rhythmic line with triplets, starting *f* and *mp*, then *p*, and ending *fff*. A note indicates to use a "friction mallet".
- Pno. (Piano):** Features a complex harmonic accompaniment with triplets and a "hand mute in piano" section. Dynamics range from *f* to *fff*.
- S. Gtr. (String Section):** Includes parts for Violin 1 (Vln. 1), Violin 2 (Vln. 2), Viola (Vla.), Violoncello (Vc.), and Contrabass (Cb.). All string parts start *fp* and end *fff*. A note indicates to "poco a poco sul pont" (poco a poco sul ponticello). A "harmonic gliss." is marked for the Violins and Viola.

The score is in 2/4 time and features various dynamics (f, mp, p, fff) and articulations (trills, triplets, glissandos). A 24-hour clock face is visible in the bottom right corner.

E

2/4 **1/4** **4/4**

**IN THE CLOUDS ENTRANCE
(FIXED MEDIA)**

The sound heard can be described as warping masses of matter.

Fl.

Cl.

Alto Sax.

To Ten. Sax. Tenor Saxophone

Bari. Sax.

Timp. G# - E

Pno.

S. Gtr. IX let ring-----I
③ ① ③ II let ring-----IV
③ ④ ② ① ④ II I ④ V h h td tu h h td tu VI h h td tu h h td tu XI
fff f

Vln. 1 **2/4** **1/4** **4/4** ord.

Vln. 2 ord.

Vla. ord.

Vc. ord.

Cb. ord.

molto sul pont. gliss. p

sul D sul A p

ord.

50 51 52 53

Fl. *mp*

Cl. *mp*

Alto Sax. *mp*

Ten. Sax.

Timp. E - A

Pno.

S. Gtr. XII let ring- XI let ring- V let ring- *p* *mf* *p* *mf*

Vln. 1

Vln. 2

Vla. sul C *p* ord. *pp* *mf*

Vc. *gliss.* *gliss.* sul D sul G *pp* *mf*

Cb. sul A sul E ord. *pp* *mf*

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

To Timp. 32" + Cym. (Large),
bell down with Pedal

pp *mp*

pp *mp* *mf* *mp*

p

let ring-----
XI V IV I II let ring-----
I let ring-----
V let ring-----
IV let ring-----
VII VI let ring-----

mp *p* *mf* *p*

ord. *p* *gliss.* *molto sul pont.* *gliss.* *gliss.* *gliss.*

sul D sul A *p* ord.

sul D sul G *mp*

4
4

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp. To Timp. Timpani tune timp. to E

Pno.

S. Gtr. II III I X IV

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

72

73

74

75

76

H

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

77

78

79

80

81

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Grtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

82 83 84 85 86

The character here is relaxing, contemplative, and rhythmically precise.

mp espress.

Background to the piano solo; played in a relaxed manner.

XII

IV

mp

mf

I

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

87

88

89

90

VIII

I

3 2 1

2 1 2 4

p

mp

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

IX VI IV III I II IV

④ ③ ② ①

⑥

mp

J

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

99

100

101

102

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

103 104 105 106

K

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

K

107

108

109

110

Emergence; contemplative.

Fl.

Cl.

Alto Sax.

Ten. Sax.

Timp.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

111 112 113 114

Fl.

A response to A. Sax; also played in a relaxed authoritative-like manner.

Cl.

Emerge; contemplative.

Alto Sax.

Play with a relaxed authority.

Ten. Sax.

pp

Timp.

To Crot.

Crotales

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

mute sul tasto

Vc.

mute sul tasto

Cb.

115

116

117

118

119

L

Fl.

Cl.

Alto Sax.

Ten. Sax.

Crot.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

120

121

122

123

124

ppp

p

ppp

pp

p

A continuation of the Cl. in B $\flat$ line. Similar character: authoritative-like manner

p

mf

p

ppp

pp

pointillistic in nature
let ring-----4

mp

pointillistic in nature

mf

pointillistic in nature
pizz.

mp

pointillistic in nature
pizz.

mp

no mute.

pp

no mute

ppp

pp

pointillistic in nature
pizz.

mp

ORION NEBULA Pt. 3
 (FIXED MEDIA)

M

3
4

The sounds heard can be described
 as pulsating oscillations.

Fl.

Cl.

Alto Sax.

Ten. Sax.

Crot.

Pno.

S. Gtr.

Vln. 1

Vln. 2

Vla.

Vcl.

Cb.

To Timp. Timpani

no vib.

ff

bis.

ff

no vib. bis.

ff

no vib. bis.

ff

ff

XI

4

2

3

0

fff

M

3
4

arco sul E

ord.

mf

p

arco sul G

mf

p

mf

p

mf

pp

ff

no vib. sul tasto

ff

no vib. arco sul G

ff

no vib. sul tasto

ff

LH pizz. no vib. arco

ff

130

131

132

133

134

135

II. Collapse, Inception of (e)Strella

$$f(M) = f_{\min} \times \left(\frac{f_{\max}}{f_{\min}} \right)^{\frac{\log(M/M_{\min})}{\log(M_{\max}/M_{\min})}}$$

$\text{♩} = 60$

"THE ORION NEBULA & BASS OSCILLATION" CONTINUATION

The sound heard can be described as organ-like with some insertions of exhale-like characteristics before "PAD 1 - THE CLOUD CHOOSES ITS PATH" begins.

AUDIO CUE/FIXED MEDIA

Solo Classical Guitar

IX V VII

let ring- let ring-

f mp f p

2 3 4 5

AC/FM

S. Gtr.

let ring- let ring-

p mf f

3 4 5 6 7 8 9

A

AC/FM

S. Gtr.

let ring- let ring-

IX VII IX

mf

10 11 12 13

AC/FM

S. Gtr.

let ring- let ring-

V

f

14 15 16 17

B

AC/FM

S. Gtr.

*) LH I RH XIII LH III RH XII LH IV RH X LH V RH IX LH VI RH VIII

Aggressive

mf

ff

fff

*) LH = left hand; RH = right hand; H = hammer-on; T = tap

**) ▽ = pick with nail of index finger; like a plectrum.
+ = palm mute

18 19 20 21

VOCAL CUE

AC/FM

S. Gtr.

**) I

22 23 24 25

PAD 1 - "THE CLOUD CHOOSES ITS PATH"

This sound can be described as an electrical mycelium-like pattern inducing the development of a star.

AC/FM

S. Gtr.

Relaxed and skittish at times

let ring-----let ring-----let ring-----let ring-----let ring-----let ring-----

IV VI II IV I

mf

26 27

VOCAL CUE

AC/FM

S. Gtr.

let ring-----let ring-----let ring-----let ring-----let ring-----let ring-----

28 29

C

"LETTER C"

AC/FM

S. Gtr.

let ring-----let ring-----let ring-----let ring-----let ring-----let ring-----

30 31 31

AC/FM

S. Gtr.

let ring-----| let ring-----| let ring-----| let ring-----|

32 33

AC/FM

S. Gtr.

let ring-----| let ring-----| let ring-----| II

34 35

AC/FM

S. Gtr.

let ring-----| let ring-----| let ring-----| let ring-----|

II I II I

36 37

AC/FM

S. Gtr.

VOCAL CUE

1 2 3 4

let ring-----| let ring-----| let ring-----| let ring-----| let ring-----|

III IV VII II

38 39

AC/FM

S. Gtr.

D "LETTER D"

X

let ring-----| let ring-----| let ring-----| let ring-----|

I II I III

40 41

AC/FM

let ring-----let ring-----let ring-----let ring-----

IV V VI VII

S. Gtr.

42 43

AC/FM

I IV VII X I IV VII X

S. Gtr.

44

AC/FM

X VII IV I I III V VII

S. Gtr.

45

AC/FM

VOCAL CUE

PAD 2 - "THE HUMMING OF GAS"

The sound is described as akin to a cosmic exhalation.

VOCAL CUE

1 2 3 4

S. Gtr.

IX X

*)

Exponentially accel.

gliss.

gliss.

fff

3

let ring-----let ring-----

IX V

ff but gentle

*)

*) Play the rhythmic material located in the box at tempo. For the remaining two beats (shown as stems only), exponentially accelerate the rhythmic material until you lose clarity of the rhythm.

*) In this technique, the performer strikes the notated dyad and slides down the guitar neck, ending the slide on the last sixteenth of beat 2. While sliding, the performer strums the quarter-note triplet; the exact slide position during the strum is unimportant, as long as the rhythm is maintained.

46 47 48 49

AC/FM

"LETTER E"

PAD 3 - "INFALLING MATTER"

The sound emerges from "PAD 2 - THE HUMMING OF GAS"; described as a faint voice that is emerging from the previous texture.

let ring-----

S. Gtr.

IX V

let ring-----

50 51 52 53

AC/FM

S. Gtr. let ring----4

IV

mp

54 55 56 57

AC/FM

VOCAL CUE

1 2 3 4

F "LETTER F"

S. Gtr.

I VI IX V

58 59 60 61

AC/FM

S. Gtr.

I IV III I III

62 63 64 65

AC/FM

VOCAL CUE

1 2 3 4

S. Gtr.

II

66 67 68 69

AC/FM

G "LETTER G"

VOCAL CUE

1 2 3 4

S. Gtr.

70 71 72 73 74 75 76 77

"GUITAR STARTS"

AC/FM

S. Gtr.

II V VIII IX I III V VII

78

VOCAL CUE

AC/FM

S. Gtr.

IX XI XII

Exponentially accel.

Aggressive XII

gliss.

gliss.

3

79 80

Intense ♩ = 72

PAD 4 - "THE RING"

The sound is described as cloud-like structure that is occasionally making its presence known.

AC/FM

S. Gtr.

V VI VII IV V I

H H m i
LH RH

ff percussive

81 82

AC/FM

S. Gtr.

I V I II

H H m i
LH RH

H H T
LH RH

H H T
LH RH

83 84

AC/FM

S. Gtr.

III V II II

H H m i
LH RH

H H
LH

H H
LH

H H
LH

H H
LH

85 86 87 88

VOCAL CUE
1 2 3
"LETTER I"

AC/FM

S. Gtr.

II III IV I II V

89 90 91

H H m i
LH RH

AC/FM

S. Gtr.

V V V I

92 93

H H m i
LH RH

H H T
LH RH

AC/FM

S. Gtr.

II III VI VIII X V

94 95

H H m i
LH RH

AC/FM

S. Gtr.

V IV VI

96 97 98

H H m i
LH RH

VOCAL CUE
1 2 3 4
"LETTER J"

AC/FM

S. Gtr.

VI I V III IV V VI VIII X

99 100

H H m i
LH RH

PAD 5 - "THE PROTOSTAR'S BREATH"

AC / FM

S. Gtr.

IX V VII III V VI

6 4 3 6 4 3 6 4 3 6 4 3 5 3 2 5 3 2

1 2 3 1 2 3 1 2 3 2 1 4 1 2 4

5 5 5 5 5 5

H H m i
LH RH

101 102

AC/FM

S. Gtr.

V VI VII IV VII V VII IV VII

103 104

AC/FM

S. Gtr.

V VI IV VI IV

⑤ ③ ① ⑥ ④ ② ⑥ ④ ② ⑥ ④ ② ⑥ ④ ② ⑥ ④ ②

2 1 3 2 1 3 2 1 3 2 1 3 2 1 3 2 1 3

5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

105 106

VOCAL CUE

1 2 3 4

AC/FM

VII III V I II

S. Gtr.

IX VIII VI

PAD 6 - "BETWEEN GRACE AND CHAOS"

The sound is described as high pitch frequencies that mimic, in a way, the high pitch screams of a newborn.

107 108

AC/FM

VOCAL CUE

LETTER K

S. Gtr.

let ring--

109

110

AC/FM

S. Gtr.

II X VI VIII IV V

H H H m i
LH RH

111 112

AC/FM

S. Gtr.

IX VI IX VII IX VI IX

113 114

AC/FM

S. Gtr.

VII V II V II

115 116

AC/FM

S. Gtr.

V II VII III V I II

VOCAL CUE

1 2

117 118

AC/FM

S. Gtr.

IX VIII V IV II

VOCAL CUE

PAD 6 - "BETWEEN GRACE AND CHAOS"

The sound is described as high pitch frequencies that mimic, in a way, the high pitch screams of a newborn.

L "LETTER L"

1 2 3 4 5 6

119 120

AC/FM

S. Gtr.

let ring----- V

III

121

122

123

II

II

AC/FM

S. Gtr.

PAD 7 - "GAS + FRICTION = FAINT GLOW"

The sound is described as a soft percussive hit that attempts to mimic, sonically, a faintly glowing light.

124

125

126

127

128

AC/FM

S. Gtr.

VOCAL CUE

1 2 3 4

M

"LETTER M"

129

130

131

132

133

AC/FM

S. Gtr.

VOCAL CUE

1 2 3 4

134

135

136

137

138

AC/FM

S. Gtr.

"GUITAR STARTS"

VOCAL CUE

1 2 3 4

N

"LETTER N"

V

IX

VII

XI

I

X

V

139

140

141

H H H m i

LH RH

H H H m i

LH RH

H H H m i

LH RH

p m i

p m i

AC/FM

S. Gtr.

142 143 144 145

AC/FM

S. Gtr.

146 147 148 149

VOCAL CUE

I VII X VIII VII V

H H H m i
LH RH

p m i p m i

AC/FM

S. Gtr.

150 151 152 153

RH i

AC/FM

S. Gtr.

154 155 156 157

X
let ring-----

AC/FM

S. Gtr.

158 159

VOCAL CUE

let ring-----

VOCAL CUE

P "LETTER P"

"TO DEATH"

The sound is described as an elevated heart rate with inserted disruptions that take the form of wisp-like motions rising infinitely until there's a burst of energy.

VOCAL CUE

1 2 3 4

AC/FM

S. Gtr.

160 161 162 163 164 165 166 167 168 169 170

Q "LETTER Q"

VOCAL CUE

1 2 3 4

AC/FM

S. Gtr.

171 172 173 174 175 176 177

III. GW150914

[illegible]

----- nasal tone

Fl.

Cl. *slow but wide vibrato* *mp* *no vib.*

Alto Sax. *mf > pp < mf < pp < mf*

Bari. Sax. *pp < mf < pp < mf < pp < mf < pp*

Gong

S. Gtr. *VIII* *let ring-----* *VII* *IV* *VII* *II* *VI* *let ring-----* *let ring-----*

Pno. *mf* *scrap cluster inside piano* *8th-----* *dynamic: loud enough to support the guitar* *8th-----*

Vln. *----- molto sul pont.* *> pp* *mf*

Vln. *----- molto sul pont.* *slow but wide vibrato*

Vla. *mf* *pp*

Vc. *mf < pp < mf < pp < mf < pp < mf < pp < mf < pp < mf < pp*

Cb. *mf < pp < mf < pp < mf < pp < mf < pp*

6 7 8

AC / FM

Fl. no vib. *mp*

Cl. slow but wide vibrato *mp* no vib.

Alto Sax. *pp* *mf* *pp* *mf* *pp* *mf* *pp* *mf* *pp* *mf*

Bari. Sax. *pp* *mf* *pp* *mf*

Gong

S. Gtr. I III V II VI *p* *ff*
H H H m i
LH RH

Pno.

Vln. *pp* *mf* *pp*

Vln. slow but wide vibrato

Vla. *mf* *pp* *mf* *pp*

Vc. *mf* *pp* *mf* *pp* *mf* *pp*

Cb. slow but wide vibrato no vib.

AC/ FM

slow but wide vibrato

ord.

Fl.

Cl.

ord.

Alto Sax.

ord.

$\text{pp} < \text{mf} > \text{pp} < \text{mf} > \text{pp}$

Bari. Sax.

ord.

$\text{pp} < \text{mf} > \text{pp}$

Gong

VII

S. Gtr.

f

scrap cluster inside piano
(use fatty part of any finger; avoid using nails)

dynamic: loud enough to support the guitar

Pno.

8th

8th

depress silently and hold.

Vln.

mf

pp

mf

pp

Vln.

no vib.

ord.

sul D sul tasto

f

Vla.

mf

pp

mf

pp

Vc.

$\text{mf} > \text{pp} < \text{mf} > \text{pp} < \text{mf} > \text{pp}$

$\text{mf} > \text{pp} < \text{mf} > \text{pp} < \text{mf} > \text{pp}$

Cb.

15

16

17

18

[illegible]

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

ord.

mf

mp

f

ff

pizz.

5/4

4/4

5/4

4/4

23

24

25

26

4/4

AC/ FM

VOCAL CUE

3/4 "LETTER C"

4/4

Fl.

flz.

mp

Cl.

flz.

mp

Alto Sax.

mp

Bari. Sax.

p

Vib.

mf

f

S. Gtr.

Pno.

mp

mp

3/4

4/4

Vln.

mp

f

Vln.

mp

Vla.

mp

ff

p

Vc.

mp

ff

p

Cb.

arco

sul E

p

27

28

29

30

4
4

VOCAL CUE

"AN EMERGENCE - BLACK HOLES!"

The sound is described as an extreme of sub-bass frequencies and higher frequencies. The sound will emerge from nothing and eventually present itself with a plethora of sub-bass frequency information but also with higher frequencies that seem to be just noise but is actually harmony in the shadows.

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

31

32

33

34

AC / FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

I

IV

V

VII

IV

p

3
4
4
4

AC / FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

II
III
V
VI

S. Gtr.

H H H m i
LH RH

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

37
53
38
4
4

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

III

IV

III
let ring-----

mp gentle

43

44

45

46

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

VOCAL CUE

E "LETTER E"

1 2 3 4

let ring-----

III

let ring-----

III

p m i

E

47 48 49 50

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

3
3
p m i
4
4
3
VIII
let ring-
3
4
3
1
VII
4
3
3
III
1
3
6
6
6

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

IX I VII V III I

H H H m i
LH RH

55 56 57 58

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

p *mf*

mp

pizz. *mp*

63 64 65 66

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

71

72

73

74

AC/ FM

Fl. *mf* *mp* *p* *mf*

Cl. *mf* *mp* *p* *mf*

Alto Sax. *mf* *p*

Bari. Sax. *mf* *p* *mf* *p*

Vib.

S. Gtr.

Pno. *p*

Vln. *ord.* *p*

Vln. *ord.* *p*

Vla. *ord.* *mf* *p*

Vc. *ord.* *p*

Cb. *ord.* *p*

75 76 77 78

VOCAL CUE

H "LETTER H"

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

IV

sul pont.

pp

mp

pp

sul pont.

pp

ord.

mf

p

pp

sul pont.

pp

ord.

p

p

79

80

81

82

AC / FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

83 84 85 86

AC/ FM

VOCAL CUE

I "LETTER I"

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

III

IV

V

VI

II

mp

mf

p

fp

pp gentle

H H H m i
LH RH

H H H m i
LH RH

I

87

88

89

90

[illegible]

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

mf *mp* *mf* *p* *mf* *mp* *mf* *p* *mf* *p* *ppp* *p*

IX IV II III

95 96 97 98

VOCAL CUE

J "LETTER J"

5/4 4/4

AC / FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

Gtr.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

99 100 101 102

69

4
4

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

Vib.

Gtr.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

Snare Drum

pp

pp

scrap cluster inside piano
(use fatty part of any finger; avoid using nails)

dynamic: loud enough to support the the winds

depress silently
and hold.

4
4

103

104

105

106

2/4 4/4 VOCAL CUE K "LETTER K"

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

Gtr.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

3
4

4
4

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

Gtr.

S. Gtr.

Pno.

3
4

4
4

Vln.

Vln.

Vla.

Vc.

Cb.

111

112

113

114

AC / FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

Gtr.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

115

116

117

118

VOCAL CUE

L "LETTER L"

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

VI let ring-----4

V

II

V let ring-----4

I let ring-----4

p *f* *mp* gentle *f*

L

119 120 121 122

TIME DILATION + GRAVITATIONAL WAVES

The sound is described as a sustained sub-bass kick that is disrupted by random patterns; it is akin to a wave being disrupted in a body of water. What is layered above it is a scalar figure that starts to become disjunct to symbolize a dilation of time.

VOCAL CUE

3/4

AC / FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

VIII
let ring-----4
⑥ ③ ④
mp *gentle*

I
let ring-----5
⑥ ④ ③ ② ①
p

IV
let ring-----5
⑥ ④ ③ ② ①
mf

II

XI
② ③ ④ ⑤
p *mf*

3/4

VOCAL CUE

1 2 3

M

"LETTER M"

4
4

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

127

128

129

130

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

127

128

129

130

4/4

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gtr.

Pno.

4/4

Vln.

Vln.

Vla.

Vc.

Cb.

131 132 133 134

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

135

136

137

138

VOCAL CUE

1 2 3 4

N "LETTER N"

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

139 140 141 142 143 144 145 146

VOCAL CUE

1 2 3 4

O "LETTER O"

AC/ FM

Fl.

Cl.

Alto Sax.

Bari. Sax.

S. D.

S. Gtr.

Pno.

Vln.

Vln.

Vla.

Vc.

Cb.

147 148 149 150 151 152 153

This musical score page, numbered 80, contains staves for the following instruments and vocal parts: AC/ FM, Flute (Fl.), Clarinet (Cl.), Alto Saxophone (Alto Sax.), Baritone Saxophone (Bari. Sax.), Soprano Drums (S. D.), Soprano Guitar (S. Gtr.), Piano (Pno.), Violin (Vln.), Violoncello (Vla.), Violin (Vln.), Violoncello (Vc.), and Contrabass (Cb.). The score is organized into measures, with measure numbers 147 through 153 indicated at the bottom. A 'VOCAL CUE' section is located at the top, spanning measures 148 to 150, with a box containing the letter 'O' and the text '"LETTER O"' above measure 150. A circled 'X' is placed on the AC/ FM staff in measure 150.