

HD 181068 ('Trinity')

for amplified cello, clarinet in B♭ [or alto sax] and horn [or trombone] + effects pedals and fixed-electronics

HD 181068 — is a hierarchical star system in the constellation of the Lyra. Consisting of a massive red giant primary [component A - Cello] orbited by two main-sequence stars ('red dwarf stars' [component B - Clarinet + Horn]). This system is compact and very stable, with regular orbital periods. All three components orbit each other in such a way that they eclipse each other — forming a rare triply eclipsing system, evolving in a 'Walzer'-like motion.

This sound sculpture takes as a point of departure different processes observed in the hierarchical structure of HD 181068 — orbits, eclipses, occultation moments and tidal oscillations with changing amplitudes and beating patterns, as well as occasional flare events of component A. One of the most intriguing results of its orbital period is that prominent frequencies ($f1$ to $f5$) extracted from the harmonic spectrum of this star system are linear combinations of the two orbital frequencies of Stars A and B — resulting in an 'out of tune' octaves spectrum. These frequencies evolve in a beating pattern during their periodic cycle, contracting into a 'quasi-unisono' phase during eclipses and occultations of component B, before returning to their initial state.

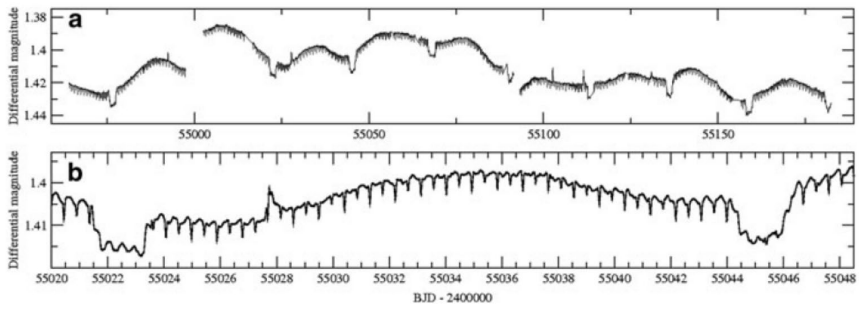
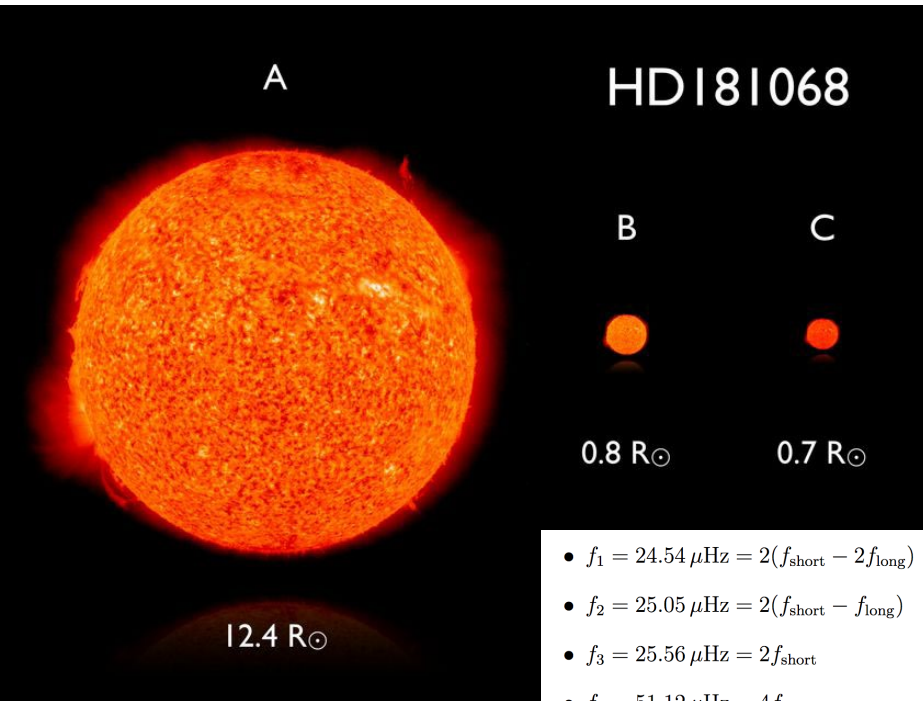
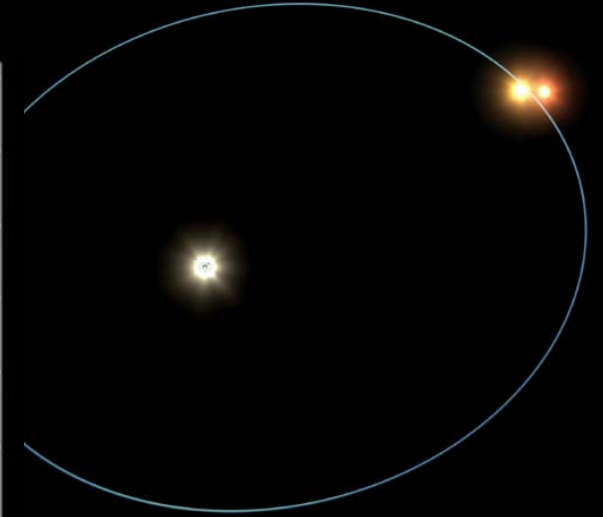
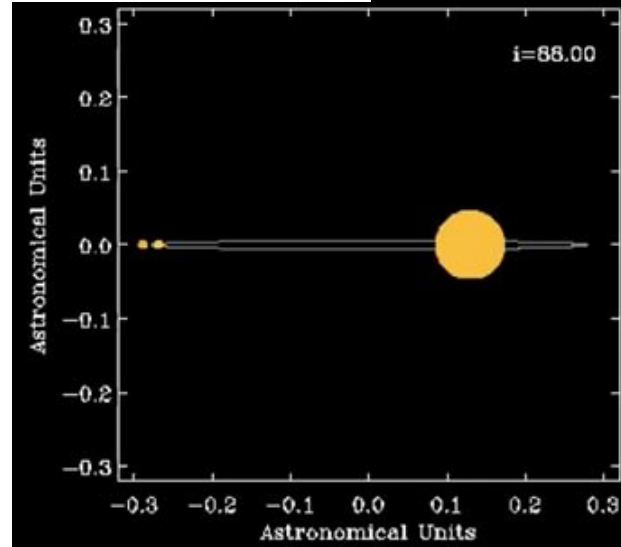


Fig. 7.8 Upper: Discovery light curve of HD 181068 ('Trinity'), a triply-eclipsing triple system consisting of a red giant primary and two main-sequence stars. Lower: Close-up of one orbital period, showing a primary and secondary eclipse interleaved by ~ 0.9 -day eclipses of the main-sequence binary (Reproduced, with kind permission, from Derekas et al. (2011))



- $f_1 = 24.54 \mu\text{Hz} = 2(f_{\text{short}} - 2f_{\text{long}})$
- $f_2 = 25.05 \mu\text{Hz} = 2(f_{\text{short}} - f_{\text{long}})$
- $f_3 = 25.56 \mu\text{Hz} = 2f_{\text{short}}$
- $f_4 = 51.12 \mu\text{Hz} = 4f_{\text{short}}$
- $f_5 = 12.83 \mu\text{Hz} = f_{\text{short}} + 1/T_{\text{obs}}$

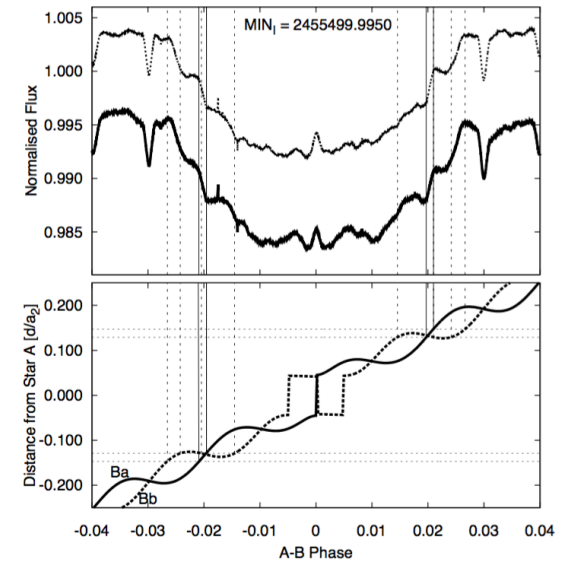
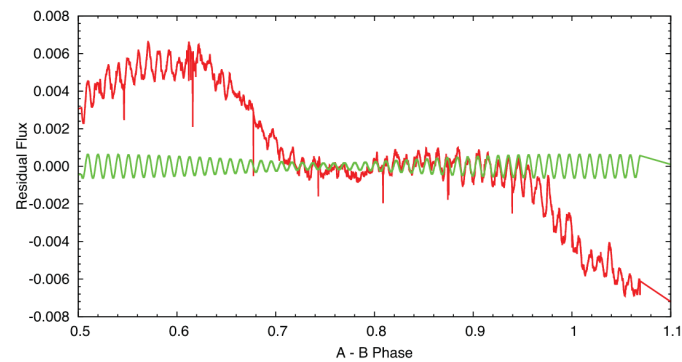
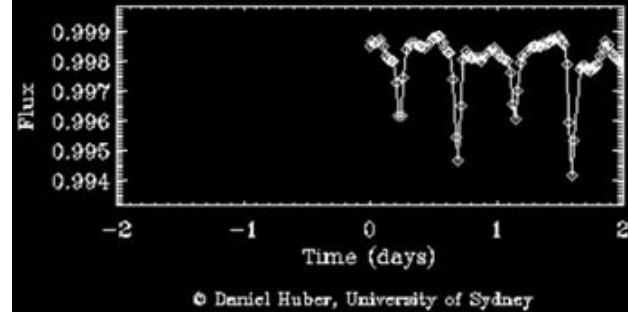


Figure 3. Red curve: sample of light curve of HD 181068 between long-duration eclipses. The x -axis is the phase of the long-period orbit, measured from the primary minimum at BJD 55545.466. Green curve: the simulated light curve of the oscillations. Note the beating pattern due to two close frequency oscillations.

technical requirements

STAGE SETUP

- 3 Music stands for the digital score
- N.B. : please use a tablet (if possible)
- 3 Bluetooth pedals
- 3 Chairs

AMPLIFICATION

VLC.

- 1 hypercardioid DPA or Pickup
(i.e. KNA vv-3 for VI.)
- 1 TR cable *if passive Pickup* (max. 1,5m)
- 1 Active DI-Box *if a passive Pickup is used*
(i.e. Millenium DI-A)

CL. + HN.

- 2 hypercardioid DPA w/ their respective clamps

SOUND SETUP

- 1 analog or digital Mixer (i.e. Mackie 802 VLZ4)
- 6 Loudspeakers (i.e. x2 Genelec 8020/30/40 or 8050 if possible)
- 1 Subwoofer (if possible and at least 7050 CPM)

LIVE-ELECTRONICS (EFFECTS PEDALS)

- AUX 1 (VLC.)
> Ventriss Reverb

- AUX 2 (CL. + HN.)
> Boss RV-6
> EHX Canyon

- AUX 3
> Red Panda Particle v2

- AUX 4
> EHX Ring Thing

CONTACT

- please contact me for the LIVE-ELECTRONICS part at rlanguillat@gmail.com

notes for performance

ACCIDENTALS apply for the whole measure

AMPLIFICATION the instruments are amplified and spatialized through their own pair of LS in stereo (VLC) or mono (CL and HN). This ensures the acoustic coherence of the instruments within the samples.

ARTICULATIONS & TECHNIQUES must be always played organically, with microvariations (never in a mechanical way).

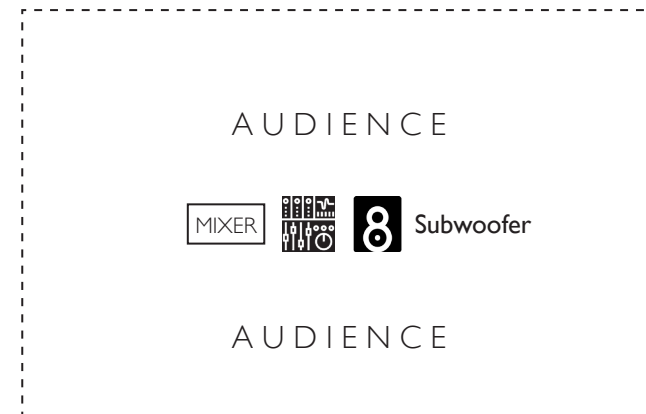
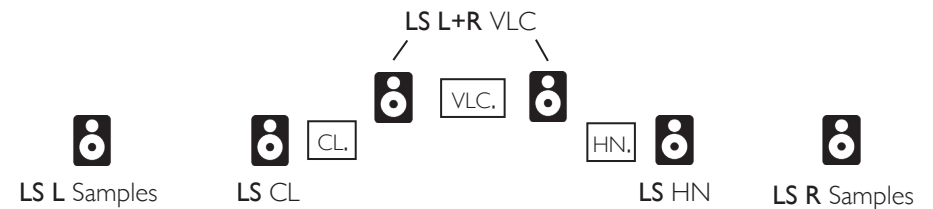
FLOW fluid like a continuous, uninterrupted celestial movement (slowed down 'Walzer'). Without accent, break or sudden events (unless otherwise indicated, i.e. with Ⓢ events of the VLC.).

GLISSANDI always played in a linear, continuous and regular manner, spanning the entire duration of the initial note (NO portamento and WITHOUT exponential morphology).

MUSICALITY the interpretation should be near to Baroque phrasing: contoured as possible, emphasizing the play of energies and the setting in motion of the sound forms (lightness and fluidity, flairs, oscillations, suspensions, shifts and contrasts).


SAMPLES are launched through an Ableton Live session (or Max /MSP Patch) and are spatialized through their own pair of LS. They are conceived as soundscapes — at the same level as the acoustic instruments, sometimes encompassing them or fading in the background.

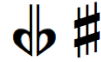
stage directions / set-up



LS = Loudspeaker

symbols

 1/4 tone flat and sharp

 3/4 tone flat and sharp

 Ligatura

 Glissando

 Continuous transition between two states

 Ad libitum alternation between two states


techniques

SCORDATURA

Cello — I -31c / II +50c / III -50c / IV -100c

CLEFS

 Area located between the bridge (upper line) and the end of the fingerboard (lower line)

 Area located between the end (upper line) and the beginning of the fingerboard (lower line)

OTHERS

- a.s.t. Very high on the fingerboard
- m.s.t. High on the fingerboard
- s.t. At the beginning of the fingerboard
- n. Normal playing position
- s.p. Near the bridge
- m.s.p. Very close to the bridge (rich in high harmonics)
- s.p. On the bridge (white noise)

 Bow pressure: extremely light, normal, more than medium, quasi-écrasé

 Natural harmonic pressure on the indicated string

HD 181068 ('Trinity')

for Trio Radial

raphaël languillat
(2022)

A
I - Orbit (α) ♩ ≈ 60
[— = 'stability ; to be']

Bb Clarinet [Ba]

Cello [A]
Scordatura: I -31c / II +50c
/ III -50c / IV -100c

F Horn [Bb]
Wooden Mute
(or Practice Mute): ON

Samples

Effect Pedals [A]
Ventris [E-Dome] ○○○○○○
Particle v2 [RND Delay] ○○○
○○○

Effects Pedals [B]
RV-6 [Mod] ○○○
Canyon [Mod] ○○○ [○] = Rate
○○○ [○] = Depth
RThing [RM] ○○○○○○

00:00

00:45" **SO1** **f** Signal [High d]

01:00"

01:15"

[Decay: also very slow, but very organic - vary pressure between *ordinario* and *flautando* (and as a causal effect, the general dynamic)] → n.

ppp *pp* *ppp*

ppp *mp*

Granular — ON w/ Flares
Reverb — 'spectral'

Ring Mod
Delay — long (/= CL / HN) + pan
Reverb — 'modulation'

01'30" 01'40" 01'50" 01'55" 02'00"

Cl. [Attack: - imperceptible as possible] [Decay: - add a 'tail' ad lib.] [always simile]

Vlc. *p* *pp* *mp* +III 3

Hn. [Attack: - imperceptible as possible] [Decay: - add a 'tail' ad lib.]

Samples *mf* S02

E. Ped. [A]

E. Ped. [B]

Detailed description: This is a musical score page for a concert band or orchestra. It features five staves: Clarinet (Cl.), Violoncello (Vlc.), Horn (Hn.), Samples, and two Electric Pedal (E. Ped.) staves labeled [A] and [B]. The score is divided into measures by vertical dashed lines, with time markers in boxes above the Cl. staff: 01'30", 01'40", 01'50", 01'55", and 02'00". The Cl. staff has a double bar line at 01'30" and a fermata at 01'40". The Vlc. staff has a *p* dynamic marking at 01'30", *pp* at 01'50", and *mp* at 01'55". The Hn. staff has a *mf* dynamic marking at 01'40" and a fermata at 01'55". The Samples staff has a *mf* dynamic marking at 01'40" and a fermata at 01'55". The E. Ped. [A] and [B] staves have a wavy line indicating a tremolo effect. Performance instructions in brackets are placed above the Cl. and Hn. staves. A 's.p.' marking is present in the Vlc. staff at 01'55". A '+III 3' marking is present in the Vlc. staff at 02'00".

20 02'15" 02'30" 02'40" 02'45" 02'55"

Cl. *mp* [Dynamic: simile, but add small variations ad lib.]

Vlc. *p* *mf* *p* *mf*

Hn. [always simile] *mp* *mp* [Dynamic: simile, but add small variations ad lib.]

Samples *mf* 503

E. Ped. [A]

E. Ped. [B]

The image shows a musical score for a section of a piece. It features five staves: Clarinet (Cl.), Violoncello (Vlc.), Horn (Hn.), Samples, and two Electric Pedals (E. Ped. [A] and [B]). The score is marked with time stamps at 02'15", 02'30", 02'40", 02'45", and 02'55". The Clarinet part starts with a dynamic of *mp* and includes a performance instruction: "[Dynamic: simile, but add small variations ad lib.]". The Violoncello part has dynamics of *p*, *mf*, *p*, and *mf*. The Horn part is marked "[always simile]" and *mp*, with a performance instruction: "[Dynamic: simile, but add small variations ad lib.]". The Samples part features a wavy line and a dynamic of *mf*, with a circled number "503" at the end. The Electric Pedals are shown as small diagrams with four dots each.

CL - FOR ALL MULTIPHONICS: try to get the most continuous line (——) as you can. But if a multiphonic breaks or tends to oscillate in-between, you should accept it as it is (unless otherwise indicated)

03'15"

03'30"

03'35"

[fingered multiphonic - #44 HR]

[**Ossia** if a multiphonic doesn't work, find an **ersatz** OR play the upper pitch in tune]

29 03'00"

Cl.

Vlc.

Hn.

Samples

E. Ped. [A]

E. Ped. [B]

The musical score consists of six staves. The Clarinet (Cl.) staff is in treble clef with a key signature of one sharp (F#). The Violoncello (Vlc.) staff is in bass clef with a key signature of one flat (Bb). The Horn (Hn.) staff is in treble clef with a key signature of one sharp (F#). The Samples staff is in bass clef and contains a wavy line. The E. Ped. [A] and E. Ped. [B] staves contain diagrams of piano pedals. Vertical dashed lines mark time points at 03'00\", 03'15\", 03'30\", and 03'35\". The Vlc. staff has dynamic markings *p* and *mf* with hairpins. The Hn. staff has a dynamic marking *p* and a wavy line with the instruction "[very small and faster vibrato]". The Cl. staff has a diamond symbol with "+III 4" above it. The Samples staff has a diamond symbol with "ord." above it.

03'45" [dyad multiphonic - #136 HR] [medium vibrato - not fast]

03'55" **2 - Eclipse (ε°I)**

04'00"

04'05" [bisbigliando: accel. < > rall.]

04'15"

04'20"

38

Cl.

Vlc.

Hn.

Samples

E. Ped. [A]

E. Ped. [B]

pp

mp

f

mf

p

mp

ord.

+1 2

+11 3

+111 0 [very slow gliss.]

s.p.

Wooden Mute: OFF

[bisbigliando: accel. < > rall.]

[sim. - add variations]

[sim. - add variations]

[sim. - add variations]

[S04]

CL+HN - Canyon [Mod]

○ ○ [○] = Rate

○ ○ [○] = Depth

47 04'30" 04'35" 04'45" 04'55" 05'00" 05'05" B

Cl. [very small vibrato - not fast]

Vlc. n. +IV 0 [on III - very slow gliss.] ord.

Hn. [medium vibrato - not fast] [very slow gliss.]

Samples S05

E. Ped. [A]

E. Ped. [B] CL+HN - Canyon [Mod]

f *mf* *f* *mf*

Detailed description: This is a page of a musical score, page 6, showing a sequence of measures from 47 to 52. The score is divided into five systems. The first system (measures 47-48) includes a Clarinet (Cl.) staff with a treble clef and a whole note G4. A Violin (Vlc.) staff with a bass clef has a whole note G2. A Horn (Hn.) staff with a treble clef has a whole note G4. The second system (measures 49-50) continues the same notes. The third system (measures 51-52) continues the same notes. The fourth system (measures 53-54) shows a change in the Horn part to a whole note G4 with a sharp sign. The fifth system (measures 55-56) shows a change in the Horn part to a whole note G4 with a sharp sign and a fermata. The score includes various performance instructions such as vibrato and glissando markings, dynamic markings (f, mf), and time markers in boxes. There are also sample names (S05) and pedal markings (E. Ped. [A], E. Ped. [B]).

65 06'00" 06'10" 06'20" 06'25" 06'40"

Cl. [1/4 ton up] *mf* *p* [underblown multiphonic - RH #52] *p* [underblown multiphonic - RH #06] *mp*

Vlc. *mp* *f* *mf* *p* *mp*

Hn. [electric micro vibrato] *mf* [in reaction to VLC's burst] *mp* *p* *mp*

Samples S07 S08

E. Ped. [A] Part v2 [Delay RND]

E. Ped. [B]

ord. n. m.s.p. s.p.

[x2]

74

Cl.

06'45" 06'50" 07'00" 07'05" 07'15" 07'25"

Vlc.

[imperceptible glissando - 1/4 tone up each measure and stay always *legatissimo*]

p *mf* *mp* *f*

ord. [bow vibrato]

Hn.

f

Samples

[S09]

E. Ped. [A]

E. Ped. [B]

RV-6 [Mod]

Time

C

4 - Orbit (Y)

83

07'30" 07'45" 08'00" 08'05"

Cl. *mf* *mp*

Vlc. *mf* *f* *mp*

Hn. *mf* *mp* *p*

Samples [high burst noise]

E. Ped. [A] Ventris [E-Dome] Part. v2 [Delay RND]

E. Ped. [B]

Annotations: + voice unisono [+/- = beatings], m.s.p. [w/ some granulation in the sound], slow bow [granulated sound - melt w/ electronics], [split tone - B♭ Horn 4.+3.]

Performance markings: ord., Time ⊖

08'15"

Stellar Winds (a)

[modulated air sound - IMPRO; long low to medium air sound

92 - add \sharp , \lt and short breaks ad lib., reacting to the electronics]

08'25"

08'30"

08'45"

Cl. $\lt mf \leftrightarrow f$ $p \leftrightarrow mf$

Vlc. $\lt f$ $p \leftrightarrow mf$ f f

Hn. $p \leftrightarrow mf / \lt f \gt$

Samples

E. Ped. [A] CL - Part. v2 [Delay RND]

E. Ped. [B] CL+HN - Canyon [Tape]

Annotations:
 - n. \leftrightarrow m.s.t. - \square - normal bow
 - [granulated sound]
 - [modulated air sound - IMPRO; on II-IV ad lib. (also possible to play on the body of the cello - long low to medium air sound - add \sharp and \lt ad lib.) - $\dashrightarrow \sharp \dashrightarrow$ ord.
 - [low air sound w/ some bursts $\lt f \gt$ - IMPRO; reverse the mouthpiece to produce stronger (f) dynamic peaks - add \lt and short breaks ad lib., reacting to the electronics]
 - [mouthpiece in reversed position]
 - +III 0
 - \otimes \odot \odot = Distortion
 - \oplus \ominus \odot = Flutter mod

101

Cl. 09'25" 09'25" 09'35"

Vlc. 09'00" 09'05" 09'15"

Hn. 8^{va} +II 4

Samples [underblown multiphonic - RH #13]
[with lots of air sound - emerging progressively from the soundscape]

E. Ped. [A] [mouthpiece in ordinary position] [flatterzunge - very granular]

E. Ped. [B] [ord.]

CL - Part v2 [Delay RND] **CL+HN - Canyon [Tape]** **VLC - Part v2**

p *mp* *p* *pp* *f* *mp ↔ mf*

ord. *ord.*

II 2

S12

09'45" 09'50" 10'00" 10'05" 5 - Orbit (δ) 10'10" 10'25"

110 [underblown multiphonic - RH #11] [underblown multiphonic - RH #9]

Cl.

Vlc.

Hn.

Samples

E. Ped. [A]

E. Ped. [B]

Ventris [E-Dome]

RV-6 [Mod]

---> Time ⌚

---> Time ⌚

pp *mp* *p* *mp*

p *mp*

[imperceptible glissando - 1/4tone up each measure and stay always *legatissimo*]

[more noise content than pitch]

[ord. sound]

119 **D** 10'30" 10'40" 10'45" 11'00" 11'05"

Cl. *mp* *f* *mf+* *mp*

Vlc. *p* *f* *p* *mf*

Hn. *mf* *mf* *mp*

Samples **S13**

E. Ped. [A] Part.v2 [Delay RND]

E. Ped. [B] Part.v2 [Delay RND]

[with more air in the sound] ord. ord. ord. ord.

[agogic tremolo-like, constant rhythm w/ accel. and rall. ad lib. imitating the electronics]

[regular tremolo-like, constant rhythm w/ minimal variations - imitating the electronics]

+III 0 +IV 0 n. +IV 3

ord. ord. ord. ord. ord. ord.

+ accel / decel TAPE /// ?

11'15" 11'25" 11'35" 11'45" 11'50"

128 [bisbigliando: accel. < > rall.]

Cl.

Vlc.

Hn.

Samples

E. Ped. [A]

E. Ped. [B]

[regular tremolo-like, constant rhythm w/ minimal variations - imitating the electronics]

[simile, + slow gliss.]

[w/ a slower pulse than CL's tremolo]

[tremolo-like and regular - imitating the electronics]

137 12'00" 12'05" 6 - Eclipse (ε°2) 12'15" 12'25" 12'35"

Cl.

Vlc.

Hn.

Samples

E. Ped. [A]

E. Ped. [B]

o ● [sim. - add variations]

[bisbigliando: accel. < > rall.]

[+ art. harm. 4th on III]

m.s.p. n.

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

CL+HN - Canyon [Mod]

⊙ ⊙ ⊙ = Rate
⊙ ⊙ ⊙ = Depth

SIS [very slow glissando]

E
12'45"
7 - Orbit (ζ) 12'55" 13'05" 13'15" 13'25"

146

Cl. *mf* *mp* *mf* *f* subito *mf* [slow gliss. - let drop the pitch] ord.

Vlc. *mf* *mp* *mf* *f* subito *mf* n. ↔ m.s.p. ⊕ [x3]

Hn. *mf* *mp* [legatissimo]

Samples **S16**

E. Ped. [A] Part. v2 [Delay RND]

E. Ped. [B] CL+HN - Canyon [Mod]

13'30" 13'35" 13'45" 13'55" 14'00" 14'10"

155

Cl. [vibrato] [trill-gliss. - 1/4 ton up] [simile - with a more air in the sound]

Vlc. [1/4 ton up] [trill-gliss. - 1/4 ton up] [1/4 ton up] [imperceptible glissando - 1/4 tone up each measure and stay always *legatissimo*]

Hn. [trill-gliss. - 1/4 ton up] [1/4 ton up]

Samples [S17] [S18] [S19]

E. Ped. [A]

E. Ped. [B]

Part. v2 [Delay RND]

164

14'15" 14'25" 14'35" 14'50" **F**

[powerful, but hollow sound (w/ odd harmonics) - check the balance w/ HN]

Cl.

mf *f* *f*

Vlc.

ord. - n. ↔ s.p. n.

mp *mf* *mf* *f*

Hn.

mf *f*

Samples

S20

E. Ped. [A]

E. Ped. [B]

173 15'00" 15'10" 15'25" 15'35" 15'40"

CL - FOR ALL SPECTRAL MULTIPHONICS multiphonics should never 'scream' and be piercing, but very delicate - even if a *f* is suggested as dynamic. Take also time to let the first (1.) partial appear and stabilize.

[spectral multiphonic - 1 partial]

8 - Flares / Orbit (η)

[spectral multiphonic] [slow gliss.] [simile]

Cl. *mf* *mf* *mp*

Vlc. *mp* *f* *p* *f* subito

Hn. *f* *f* *mf* *mp* [simile]

Samples

E. Ped. [A]

E. Ped. [B]

[m.s.p. -] [ord.]

[split tone - B \flat Horn 3.+4.] [fast gliss.] [metallic] [slow gliss.]

[S21]

Part. v2 [Delay RND]

182 15'45" 15'55" **G** [legatissimo] 16'00" 16'15" 16'20"

Cl. [underblown multiphonic - RH #02] RND S&H *p ↔ f*

Vlc. *mf* *mp* *f* subito *mp* +IV 3

Hn. *mf* *f* *mp* *mf* *f* *p ↔ f*

Samples S22

E. Ped. [A]

E. Ped. [B]

CL+HN - RND S&H alternate gestures cresc. [*<*] and swells [*>*]. Each having a duration between 1" and 6" max. and breaks of 1" to 3" max. inbetween. Choose pitches ad lib. from the suggested written range. Add also some microtonal deviations and micro glissandi.

CL - RND S&H same rules as CL upper

Part. v2 [Delay RND]

191 16'30" 16'45" 16'55" 17'00"

Cl. *> p ↔ mf*

Vlc. *mf* *mp* *f*

Hn. *p ↔ mf* *f*

Samples

E. Ped. [A]

E. Ped. [B]

+III 2

ord.

S23

200 17'15" 17'30" 17'45" do = sib

Cl. *mf* *mp*

Vlc. *> p* *mf* *p* *mp* [III 2 only] +II 0 +I 0

Hn. *mf* *mp* + [metallic]

Samples

E. Ped. [A]

E. Ped. [B]

Detailed description: This is a page of a musical score for a concert band or orchestra. It features six staves: Clarinet (Cl.), Violoncello (Vlc.), Horn (Hn.), Samples, Electric Pedal [A] (E. Ped. [A]), and Electric Pedal [B] (E. Ped. [B]). The score is divided into three measures by vertical dashed lines, with time stamps 17'15", 17'30", and 17'45" above the first three measures. The Clarinet part starts with a dynamic marking of *mf* and changes to *mp* in the second measure. The Violoncello part begins with an accent (>) and a dynamic of *p*, then moves to *mf* and *p* in the second measure, and *mp* in the third. The Horn part starts with *mf* and changes to *mp* in the second measure. The Samples staff shows a dotted line in the first measure. Performance instructions include "[III 2 only]" for the Vlc. in the second measure, "+II 0" and "+I 0" for the Vlc. in the third measure, and "+" [metallic]" for the Hn. in the third measure. A red curved line with an arrow points to a note in the Clarinet staff in the third measure, with the text "do = sib" written in red next to it.

pp →

209 18'00" 18'05" H 18'15" 9 - Orbit (θ) sol 3/4 = fa 3/4 18'30" 18'35"

Cl. *p* [add ad lib. during the swells] *mp* *n.* *m.s.p.*

Vlc. *pp* *b* *mp*

Hn. *mf* *mp* [simile] *do# = fa#*

Samples S24

E. Ped. [A]

E. Ped. [B]

Detailed description of the musical score: The score is for a section starting at 18:00. It features five staves: Clarinet (Cl.), Violin (Vlc.), Horn (Hn.), Samples, and two Electric Pedal (E. Ped.) staves labeled [A] and [B]. The Cl. staff begins with a *p* dynamic and includes a handwritten *pp* annotation. A red circle highlights the text 'sol 3/4 = fa 3/4' above the Cl. staff between 18:15 and 18:30. The Vlc. staff starts with a *pp* dynamic and has a red circle around a *do# = fa#* annotation. The Hn. staff has a *mf* dynamic and a *mp* dynamic. The Samples staff includes a box labeled 'S24'. The E. Ped. staves show pedal markings. Time markers are placed at 18:00, 18:05, 18:15, 18:30, and 18:35. A box labeled 'H' is above the 18:05 marker, and a box labeled '9 - Orbit (θ)' is above the 18:15 marker. Performance instructions include '[add ad lib. during the swells]', 's.p.', 'n.', and 'm.s.p.'.

218

18'45" 18'55" 19'00" 19'10" 19'15"

Cl.

Vlc.

Hn.

Samples

E. Ped. [A]

E. Ped. [B]

The score consists of six staves. The Cl. staff has a red annotation "[slowest possible gliss. (rising or falling) - max. z-]" above a line. The Vlc. staff has a red annotation "[slowest possible gliss. (rising or falling) - max. z-]" above a line, a red *mf* dynamic marking, and a red *mp* dynamic marking. The Hn. staff has a red annotation "[slowest possible gliss. (rising or falling) - max. z-]" above a line and a *mp* dynamic marking. The Samples staff has a box labeled "S25" above a note. The E. Ped. [A] and E. Ped. [B] staves show pedal markings. Performance instructions include "[slow gliss.]", "n.", "s.p.", and "mp".

227 19'30" 19'45" 19'55" 20'00"

Cl. [slow gliss.] [flatten the dynamic peak(s), but subdivide more and more the <->]

Vlc. +III 0 [slow gliss.] *mf* *mp* *mf* *mp*

Hn. [slow gliss.] + *mf* *mp*

Samples

E. Ped. [A]

E. Ped. [B]

CL+HN - Canyon [DMM] ○ ○ [○] = Mod Rate
○ ○ [○] = Mod Depth

NEW MOTIV ?



236 I 20'15"

10 - Occultation 20'25" 20'45"

[despite the swells, make one with the VLC] [simile - add more movement in the swells <> and play with the long 8" delay]

Cl. *mp* [add micro-swells ad lib. to animate the dynamic and global texture] *mp* [simile]

Vlc. *f* [flatten the dynamic peak (f), but subdivide more and more the <>] *mf* [despite the swells, make one with the VLC] *ff* [simile - add more movement in the swells <> and play with the long 8" delay] [↕ ↔ ↕] - add microtonal

Hn. *mp* *mp*

Samples S26

E. Ped. [A]

E. Ped. [B]



J

21'35"

II - Cadenza | Flares

21'00"

21'15"

21'20"

245

[↕ ↔ ↕] - add microtonal deviations ad lib. (about +/- 1/8 tone max.)

-----> [wavy box] -----> ord.

Cl.

Vlc.

Hn.

Samples

E. Ped. [A]

E. Ped. [B]

mf *f* *mf* *f*

deviations ad lib. (about +/- 1/8 tone max.)

[occasional]

[Arpeggios - up and down ad lib.]

n. ↔ m.sp. - [] ↔ []

[slow gliss.]

mf *mp*

S27

S28

Part.v2 [Delay RND]

CL+HN - Canyon [DMM]

254

21'45" [slow gliss.]

[underblown multiphonic - RH #48]

21'55"

22'05" *mf*

22'15" [spectral multiphonic - I partial] *mp*

22'25"

Cl. *mp*

Vlc. [+ Drones - on open strings, replacing Flares' Decay] *mf* *mf* ↔ *f*

Hn. [slow gliss.] *mf* *p* [slow gliss.]

Samples

E. Ped. [A]

E. Ped. [B]

Ⓢ [more and more frequent]

Ⓢ [numerous]

s.p. ↔ m.s.p.

⌘ ≈

Handwritten red annotations include a large curve over the Cl. staff from 22'05" to 22'15" and a smaller curve over the Hn. staff from 22'15" to 22'25".

NEW = harmonics VLC?
+ Less Samples

263

Cl.

22'30"

22'45"

22'55"

23'05"

Vlc.

mf ↔ ff

mf ↔ f

[gradual transition w/ less and less Arpeggios and more Drones]

[- Arpeggios / + Drones
overtone-rich and complex
timbre - more than]

Hn.

529

p ↔ f [+ (*bouche*) ad lib.]

Samples

VLC - Rthing [RM]
○○○○○

E. Ped. [A]

E. Ped. [B]

CL - RND S&H same rules as p. 22 and HN under - add also underblown and spectral multiphonics (1. partial only)

Range

RND S&H

p ↔ f

I+II 0 II 0 + gliss. I 0 RND

CL+HN - RND S&H alternate gestures cresc. [*<*] and swells [*>*]. Each having a duration between 1" and 6" max. and breaks of 1" to 3" max. inbetween. Choose pitches ad lib. from the suggested written range. Add also some microtonal deviations and micro glissandi.

Range

RND S&H

p ↔ f [+ (*bouche*) ad lib.]

HN Rthing - RM
○○○○○

[IMPRO - play with the RM levels (Blend)]

272 23'15"

with less activity and more rests between each gesture

23'30"

K
23'45"

12 - Orbit (L) [spectral multiphonic - partial 1]
[add *flatterzunge* (noise and granulation) to the sound]

Cl. ord.

Vlc. [M] IV - 6+11+5
[multiphonic result - in C]

Hn. [split tone - Bb] Horn 4.+3.]

Samples [S32]

E. Ped. [A] Part.v2 [Delay RND] Ventris [E-Dome]

E. Ped. [B] - - - - - Time ⌚

CL Rthing - RM
○○○○○
[IMPRO - play with the RM levels (Blend)]

p ↔ mf *f* *mf* *f* *mp* *p*

RND + gliss. + gliss. (II 0) RND + minimal down gliss. [harmonic gliss.]

II 0 I 0 IV 0

281 24'00" 24'10" 24'25" 24'35"

Cl. *mp* *mf* [with some air noise] *mf*

Vlc. *f* *mf* *f* [harmonic gliss on IV - blending with the electronic textures]

Hn. [split tone - B \flat Horn 4.+3.] *mf* [simile] *mp* [let fall the split tone]

Samples S33 S34

E. Ped. [A] Part.v2 [Delay RND]

E. Ped. [B] RV-6 [Mod] Time

ord. ord.

gray

[x2] [M] [IV - 4+1|1+7+3]

⊗

24'45" 24'55" Stellar Winds (b) 25'05" 25'20"

290 [with more air noise]

Cl. *p ↔ mf*

Vlc. *mp* [granulated sound] [with more harmonic gliss than the other flares (not too fast) - sound always granulated] *mf* *p* *mp*

Hn. [split tone - B♭ Horn 3.+2.] *p* *mp* [stay noisy - with a lot of air] *p ↔ mf / < f >*

Samples *S35*

E. Ped. [A] Part. v2 [Delay RND]

E. Ped. [B]

CL+HN - Canyon [Tape]

⊗ ⊗ [] = Distortion
 ⊗ ⊗ [] = Flutter mod

[modulated air sound - IMPRO: low to medium pitched air sound - add $\#$, < > and short breaks ad lib., reacting to the electronics]

[mouthpiece in reversed position] [similar as page 11 - see next page]

ord.

air

25'30" 25'40" 25'50" 26'00" 26'05"

299

Cl. *p ↔ mf* [with some air noise] *mf* *p ↔ mp* *p*

Vlc. *p* *mf* *mp* *mf*

Hn. *f*

Samples S36

E. Ped. [A] Part v2 [Delay RND]

E. Ped. [B] CL+HN - Canyon [Tape]

13 - Orbit (K)
[underblown multiphonic - RH #9]
[with some air noise]

[low air sound w/ some bursts <f> - IMPRO: reverse the mouthpiece to produce stronger (f) dynamic peaks - add '<>' and short breaks ad lib., reacting to the electronics]

[w/ a clearer sound, but melt w/ CL + HN multiphonics]

[mouthpiece in ordinary position]

[split tone - B♭ Horn 4.+3.]

ord.

308 26'15"

Cl. 26'25" [RH #26]

Vlc. [M III - fade out] +III 0

Hn. 26'45" [RH #41]

Samples S37

E. Ped. [A]

E. Ped. [B]

Ventris [E-Dome]

---> Time ⏪

Detailed description of the musical score: The score is for a concert band or orchestra. It features five staves: Clarinet (Cl.), Violoncello (Vlc.), Horn (Hn.), Samples, and two Electric Pedal (E. Ped.) parts labeled [A] and [B]. The Cl. staff has a time marker at 26'15" and a rehearsal mark [RH #26] at 26'25". The Vlc. staff has a performance instruction [M III - fade out] and a fingering mark +III 0. The Hn. staff has a time marker at 26'45" and a rehearsal mark [RH #41]. The Samples staff has a marker [S37]. Dynamic markings include *mp*, *mf*, and *p*. A legend at the bottom right indicates 'Ventris [E-Dome]' and a dashed line with an arrow pointing right labeled 'Time' with a clock icon.

317

27'00" [RH #22]

27'10" [Dynamic: simile, but add small variations ad lib.]

27'25" [RH #57] [Ossia f# only]

27'35"

Cl.

Vlc. [Flare's Decay like suspended, in slow-motion - a 'calmer' flare with far less activity] [D] [x1] p mf subito mp p [M] III - 7+10+13+3

Hn. mf mp p mp

S38

Samples

E. Ped. [A] RThing [RM] - IMPRO very slow gliss up/down w/ Fine + Coarse

E. Ped. [B] RV-6 [Mod] Time

HN - Rthing [RM]

Detailed description of the musical score: The score is for a concert band or orchestra. It features six staves: Clarinet (Cl.), Violoncello (Vlc.), Horn (Hn.), Samples, Electric Pedal [A] (E. Ped. [A]), and Electric Pedal [B] (E. Ped. [B]). The time markers are 27'00", 27'10", 27'25", and 27'35". The Cl. staff has a dynamic marking of *p* and a performance instruction: "[Dynamic: simile, but add small variations ad lib.]". The Vlc. staff has a dynamic marking of *p*, a performance instruction: "[Flare's Decay like suspended, in slow-motion - a 'calmer' flare with far less activity]", and a fingering instruction: "[D] [x1]". The Hn. staff has dynamic markings of *mf*, *mp*, *p*, and *mp*. The Samples staff has a performance instruction: "S38". The E. Ped. [A] staff has a performance instruction: "RThing [RM] - IMPRO very slow gliss up/down w/ Fine + Coarse". The E. Ped. [B] staff has a performance instruction: "RV-6 [Mod] Time".

27'45" 27'50" 28'05" 28'15" 28'25"

326 [RH #52]

[RH #82]

[let drop the pitch during the fade out but without interrupting the multiphonic]

[bisbigliando; accel. < > rall.]

Cl. *p*

Vlc. *mp* *p* *mp* *p*

[slow harmonic gliss.]

Hn. *p* [slow gliss]

Samples

E. Ped. [A] Part. v2 [Delay RND]

E. Ped. [B] CL - Rthing [RM]

14 - Eclipse (ε°3)

335

28'30" 28'35" 28'45" 28'55" M 29'05"

Cl. *mp* *mf* *mp*

Vlc. *mp* *p* *mf*

Hn. *mp* *mf*

Samples

E. Ped. [A]

E. Ped. [B]

CL+HN - Canyon [Mod] ○ ○ [] = Rate ○ ○ [] = Depth

[bisbigliando: accel. < > rall.]

○ ● [sim. - add variations]

540

VLC - Rthing [RM]

Detailed description: This is a musical score page for a concert band or orchestra. It features five staves: Clarinet (Cl.), Violoncello (Vlc.), Horn (Hn.), Samples, and Electric Pedals (E. Ped. [A] and [B]). The score is divided into measures by vertical dashed lines, with time markers at 28'30", 28'35", 28'45", 28'55", and 29'05". The Clarinet part starts at measure 335 and includes dynamic markings of *mp*, *mf*, and *mp*. The Violoncello part includes *mp*, *p*, and *mf*. The Horn part includes *mp* and *mf*. The Samples part includes a box labeled '540'. The Electric Pedals [A] and [B] parts are represented by piano keyboard diagrams. Performance instructions include '[bisbigliando: accel. < > rall.]' and '○ ● [sim. - add variations]'. A box labeled 'M' is positioned above the 28'55" time marker.

29'15" 29'25" 29'35" 29'40" 29'55"

344

Cl. [RH #01] [till the end, with more and more air in your sound]
[Ossia: if a multiphonic doesn't work, find an ersatz OR play the upper pitch in tune] [RH #08]

Vlc. [M] II - 7+13+6 [M] II - 7+13+6 → II 7 8^{va} +13

Hn. *mp* *pp* *p* *p* Wooden Mute: ON

Samples *pp* *p* Signal [High d]

E. Ped. [A] CL+HN - Canyon [Mod]

E. Ped. [B]

Detailed description of the musical score: The score is for a section titled '15 - Orbit (λ)' spanning from 29'15" to 29'55". It features five staves: Clarinet (Cl.), Violoncello (Vlc.), Horn (Hn.), Samples, and two Electric Pedal (E. Ped.) tracks labeled [A] and [B]. The Cl. staff has two parts: a main line with notes and a lower line with notes and a dynamic marking of *p*. The Vlc. staff has two parts: a main line with notes and a lower line with notes and dynamic markings of *p*, *mp*, *pp*, and *p*. The Hn. staff has notes and dynamic markings of *mp*, *pp*, and *p*, with a 'Wooden Mute: ON' instruction. The Samples staff has notes and dynamic markings of *pp* and *p*, with a 'Signal [High d]' instruction. The E. Ped. [A] and [B] tracks have a 'CL+HN - Canyon [Mod]' instruction. Time markers are placed at 29'15", 29'25", 29'35", 29'40", and 29'55". A rehearsal mark '344' is at the beginning. Performance instructions include '[RH #01] [till the end, with more and more air in your sound]', '[Ossia: if a multiphonic doesn't work, find an ersatz OR play the upper pitch in tune]', and '[RH #08]'. Technical markings include '[M] II - 7+13+6', '→ II 7', and '8^{va} +13'.

353 30'00" [RH #13] 30'10" 30'20" 30'30" 30'35"

Cl. *pp*

Vlc. *ppp* +II 2 [till the end] *p* +III 5 *ppp* *p*

Hn. *p* *morendo* [from here, play at your own independent tempo]

Samples [S41] *mp*

E. Ped. [A]

E. Ped. [B]

CL+HN - Canyon [Tape] ⊗ ⊗ ⊗ = Distortion ⊗ ⊗ ⊗ = Flutter mod Canyon [Tape] - IMPRO Delay + Feedback

362 30'45" [RH #32] 31'00" N 31'05" [RH #46] 31'15"

Cl. *ppp*

Vlc. *ppp* *p* *ppp* M 1-3+11+8

Hn. *pp*

Samples *mf* S42

E. Ped. [A]

E. Ped. [B]

Detailed description: This is a page of a musical score for a concert band or orchestra. It features five staves: Clarinet (Cl.), Violin (Vlc.), Horn (Hn.), Samples, and two Electric Pedal (E. Ped.) staves labeled [A] and [B]. The score is divided into measures by vertical dashed lines. Above the staves, there are time markers in boxes: 30'45", 31'00", 31'05", and 31'15". A box with the letter 'N' is positioned above the 31'05" marker. Performance instructions include dynamics such as *ppp* (pianissimo), *p* (piano), and *mf* (mezzo-forte). Specific performance notes include "[RH #32]" above the first measure, "[RH #46]" above the measure at 31'15", and "M 1-3+11+8" above the violin staff. The Samples staff begins with a *mf* dynamic and a note with a fermata. The E. Ped. [A] and [B] staves show pedal markings with stems and flags.

371

Cl.

31'30" 31'45" 32'00"

Vlc. *pp* *ppp* *pp* *pppp*

Hn. *ppp*

Samples *f* [+ wind reverb]

E. Ped. [A]

E. Ped. [B]

⊖ ⊖ ⊖ = Distortion
 ⊖ ⊖ ⊖ = Flutter mod

CL+HN - Canyon [Tape]
 [let the echos disappear...]

45/4

45/4