

Julian Wagstaff

In Extremis
for string trio

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Score
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In Extremis

for violin, viola and cello

This work was commissioned by Music in KB (the music society at King's Buildings, the science campus of Edinburgh University) in 2011. At the time I was serving as Composer in Residence at King's Buildings. The piece received its first performance at a concert given by members of the Edinburgh Quartet at the e-Science Centre in Edinburgh on 19 April 2011 as part of the Edinburgh International Science Festival. The players were Tristan Gurney (violin), Michael Beeston (viola) and Mark Bailey (cello).

This work is in three movements, as follows:

1. SI-SVI
2. "Attempt No Landings Here"
3. *Explosiv*

Each of the three movements is informed and inspired by the work of a different group of scientists working at the Centre for Science at Extreme Conditions (CSEC) at Edinburgh University. The Centre re-creates the extreme temperatures and pressures found at the centre of the earth and on distant planets, and investigates how substances react under these conditions.

The first movement draws on Dr. Olga Degt'yareva's ground-breaking work on the high-pressure solid phases of the element sulphur, with the "SI-SVI" of the title referring to a journey from sulphur phase one through to phase six. In writing this section I wished to emphasise the "movement within stasis" aspect of those crystalline structures. Each phase has its own definite geometry, but that geometry is itself constantly pulsating and vibrating. The term "phase" also put me in mind of the work of minimalist composers such as Steve Reich (for example *Piano Phase* from 1967).

The second movement was inspired by Dr. John Loveday's work on methane hydrates on Saturn's largest moon, Titan. (The title of the movement is a reference to Arthur C Clarke's novel 2010, the sequel to 2001-A Space Odyssey, in which life emerges on Jupiter's moon Europa). Titan is of particular interest to researchers due to its relative size (it is larger than the planet Mercury), and because it is the only moon that we know of to have a fully developed atmosphere. On icy Titan, methane plays the role that water does in Earth's weather systems: it can form clouds, and can fall as rain – or even hail or snow. In 2004 the Cassini-Huygens mission discovered liquid hydrocarbon lakes in the satellite's polar regions.

The third and final movement is a musical treatment of the high explosive CL-20, and is indebted to Professor Colin Pulham's work on the high-pressure "zeta" form of the substance. The explosive has the chemical formula C₆H₆N₁₂O₁₂, and this formula is reflected in the pitch and time signature choices within the movement. The application and nature of the explosive is represented in the musical gestures and articulation that give the movement its character and shape.

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In Extremis

SI-SVI

"Phase I"

With a very steady pulse ($\text{♩}=70$)

on the string

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Musical score for three instruments: Violin I, Viola, and Violoncello. The score is in 3/2 time. The Violin I part consists of eighth-note patterns. The Viola part consists of eighth-note patterns. The Violoncello part consists of eighth-note patterns, with a dynamic marking of p . The score includes performance instructions: "on the string" for the steady pulse, "pp" for the Viola part, and "solo (non express.)" for the Violoncello part.

Continuation of the musical score from measure 3. The instrumentation remains the same: Violin I, Viola, and Violoncello. The score shows a repeating pattern of eighth-note patterns for each instrument, maintaining the 3/2 time signature and the "on the string" instruction.

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Continuation of the musical score from measure 6. The instrumentation is Violin I, Viola, and Violoncello. The score includes a tempo change to $\text{A L'istesso tempo} (\text{♩}=70)$. The Violin I part features sixteenth-note patterns. The Viola part has eighth-note patterns. The Violoncello part has eighth-note patterns. Dynamics include pp , p , and mp .

Continuation of the musical score from measure 9. The instrumentation is Violin I, Viola, and Violoncello. The score shows a continuation of the rhythmic patterns established in previous measures, with the "on the string" instruction still applicable.

B More of a groove! ($\text{d}=72$)

Musical score for section B, measures 11-13. The score consists of three staves: Treble, Bass, and Bass. Measure 11 starts with a 12/8 time signature. Measures 12 and 13 start with a 2/4 time signature. Measure 13 ends with a 3/2 time signature. Dynamics include *mf* and *mp*. Measure 14 begins with a 12/8 time signature.

Musical score for measure 14. The score consists of three staves: Treble, Bass, and Bass. The measure begins with a 12/8 time signature, followed by a 3/2 time signature, and ends with a 2/4 time signature. The bass staff features sustained notes with grace notes.

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C L'istesso tempo ($\text{d}=72$)

Musical score for section C, measures 17-19. The score consists of three staves: Treble, Bass, and Bass. Measure 17 starts with a 12/8 time signature. Measures 18 and 19 start with a 3/2 time signature. Measure 19 ends with a 4/2 time signature. Dynamics include *mp*, *mf*, and *mf+*.

Musical score for measure 20. The score consists of three staves: Treble, Bass, and Bass. The measure begins with a 12/8 time signature, followed by a 3/2 time signature, and ends with a 2/4 time signature. The bass staff features sustained notes with grace notes.

D "Phase II"
L'istesso tempo ($\text{d}=72$)

22

poco espr.

f

mf

mf

24

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26

E

29

f+

f

f

31

F "Phase III"
very slightly faster ($\text{♩}=74$)

33

mf
poco espress.

35

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38

G

40

f

f+

gliss.

f

42

H

45

sub.p *poco a poco cresc.*

sub.mp *poco a poco cresc.*

sub.p *poco a poco cresc.*

48

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I

51

ff

ff

ff

55

"Phase IV' "

J A little more languid ($\text{♩}=126$)
(like bells chiming)

60

64

69

74

K

79

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94
Cantabile
poco rit.
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Musical score for orchestra, page 94, section "Cantabile". The score consists of three staves: Violin I (top), Violin II (middle), and Cello/Bass (bottom). The key signature is four flats. Measure 1 starts with a dynamic *pp*. Measure 2 begins with a grace note followed by a sustained note. Measure 3 shows a melodic line with eighth-note patterns. Measure 4 features a sustained note with a fermata. Measure 5 contains eighth-note patterns with slurs. Measure 6 includes a dynamic *pizz.*. Measure 7 shows eighth-note patterns with slurs. Measure 8 concludes with a dynamic *ppp*. Measure 9 begins with a dynamic *pp*. Measure 10 shows eighth-note patterns with slurs. Measure 11 concludes with a dynamic *ppp*. Measure 12 begins with a dynamic *ppp*.

M "Phase IV"
Slightly slower ($\text{♩}=120$)

pizz.

mf
(nat. harmonics., notated pitch = sounding pitch)

arco

mf II II I I II IV

mf
(nat. harmonics., notated pitch = sounding pitch)

IV II IV II II III

104

II II I I II IV
IV I IV II IV II II III

N

108

(mf)

II II I II II III
IV I IV II IV II II III

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112

8va---1

III IV II II II III
IV I IV II IV II II III

O

116

(mf)

8va---1

f

III IV II II I II III
IV I IV II IV II II III

120

124

P "Phase V" ($\text{♩}=130$)

arco

p

ff

ff 3 3

ff

Sample only.

127

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129

131

133

rall. Sample only.

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135

Q Quasi tempo primo ($\text{♩} = 72$)

137

140

R

143

146

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S

148

152

154

ff

sffz

ff

sffz

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"Attempt No Landings Here"

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Boundless (♩=60)

(Harms. N.B if impractical, play non-harmonics up two octaves, sul tasto

Musical score for three instruments:

- Violin I:** Treble clef, 4/4 time, dynamic **p**. Mute on.
- Viola:** Bass clef, 4/4 time.
- Violoncello:** Bass clef, 4/4 time. (nat. harms., notated pitch = sounding pitch) Fingerings: II, II, III, III. Dynamic **p**.

5

(con sord.) solo flautando **mp**

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A

9

at the tip

B

13

C

18

*Sample only.
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D

22

26

sul tasto

at the tip

mute off!

E

Maestoso ma
l'istesso tempo

naturale 30 I

loco III espress. 6

f naturale

f naturale

Sample only.

Not for performance use.

espress. 33 6 3

espress. 3 6

espress. 35 6 f mf

f mf f mf

16 **F** More definite ($\text{♩} = 75$)

39 (d.+d)

poco sul pont.

p

41 poco sul pont.

Sample only.**Not for performance use.**

43

G naturale

45