

MICHAEL SALVATORE GREBLA

EULER'S MUSIC

The Music of a Spinning Disk

Written for the West Australian Symphony Orchestra
Educational Chamber Ensemble Composition Project 2015

CHAMBER ORCHESTRA

2015

C SCORE

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michaelgrebla.com

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Premiered Monday 22nd of June, 2015
John Inverarity Music & Drama Centre

PROGRAM NOTES

"Euler's Music is a work deeply indebted to Euler's Disk (a scientific educational toy first developed by Leonhard Euler to illustrate the motion of spinning disk on a flat surface) coupled with my own curiosity of the mechanics of gyroscopes born during my undergraduate studies in mechanical engineering. Given an impulse of energy, the disk spins, the axis of rotation continually shifts, and the disk gradually loses energy. What is interesting and grounds for musical exploration is the interplay of energy within the rotations of the disk. As rotation in one direction decreases, rotation in another direction accelerates, and despite losing energy, the motion of the disk increases exponentially before imploding dramatically to a sudden halt.

I define the 3 axis of rotation (X, Y, Z) as three distinct pitch sets created from the division of the chromatic scale ($C, D\flat, A\flat, E\flat / D, F\sharp, A\sharp, B / E F G A$). It is possible to hear each of these sets interact, compete and eventually meld as they react to the initial impulse of energy. *Euler's Music* utilises the serialisation of pitch sets, polyrhythms, dynamics and register (albeit with varying degrees of flexibility) in an attempt to explore the laws of physical motion that govern the mechanical phenomena of Euler's Disk as a means to achieve musical structure. Is this logic transmutable and if so could mechanics be a new source of musical structure? "

INSTRUMENTATION

1 Alto Flute (Flute, Piccolo)
1 Oboe
1 Bb Clarinet
1 Bassoon (Contrabassoon)

1 F Horn
1 C Trumpet
1 Trombone
1 Tuba

1 Percussion (Suspended Cymbal, Bass Drum)

1 Harp

1 Violin I
1 Violin II
1 Viola
1 Violoncello
1 Contrabass

APPROXIMATE DURATION: 4'30"

EULER'S MUSIC

♩=72 Mysterious

Michael Grebla (b.1989)

Breathe where needed

Breathe where needed

Alto Flute

Oboe

B♭ Clarinet

Bassoon

F Horn

C Trumpet

Trombone

Tuba

Percussion

Harp

Sus. Cym. (soft mallets)

l.v.

p

l.v.

mp

♩=72 Mysterious

con sord. vib. (solo)

Solo Violin I

Solo Violin II

Solo Viola

Solo Violoncello

Solo Contrabass

p espress.

4

A. Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.

Vc.

Cb.

7 7 5 6 7 6 5 7 5 6 7 6 5

A. Fl.

Ob.

Cl.

5 6 7 6 5 7 5 6 7 6 5 7

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.

Vc.

Cb.

con sord. non. vib.

p *espress.*

10

A. Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.

Vc.

Cb.

13

A. Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.

Vc.

Cb.

con sord.
non vib.

ppp

ppp

16

A. Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.

Vc.

Cb.

con sord.
non. vib.

ppp

19

A. Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.

Vc.

Cb.

poco accel.

21

A. Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

poco accel.

Vln. I

Vln. II

Vla.

Vc.

Cb.

A

♩=80

Hn.
 C Tpt.
 Tbn.
 Tba.

Musical score for Violin I, Violin II, Viola, Violoncello, and Contrabasso. The score is in 2/4 time, key of D major, and tempo of 80. It features a section labeled 'A' with a key signature change to D major. The Violin I part has a melodic line with a 6th and 7th fret marking. The Violin II part has a melodic line with a 7th and 6th fret marking. The Viola part has a melodic line with a 6th and 7th fret marking. The Violoncello and Contrabasso parts have a melodic line with a 6th and 7th fret marking.

27

A. Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.

Vc.

Cb.

p

pp

pizz

pp

3

3

3

3

[illegible]

[illegible]

[illegible]

16

16

C

Flute
Non vib.

40

Fl.

mp

Non vib.

Ob.

mp

Cl.

Bsn.

Hn.

C Tpt.

mp

p

senza sord.

Tbn.

Tba.

Perc.

mp

Hp.

C

Vln. I

p

pp

Vln. II

mp

Vla.

p

pp

Vc.

p

pp

Cb.

vib.

[illegible]

46

Fl.

</

Fl. *mp* 52

Ob.

Cl. 5 6 7 6 5 6 7 6 5 7 5 6

Bsn.

Hn. *mp*

C Tpt. *p* *mf* *p*

Tbn. *p*

Tba.

Perc.

Hp.

poco accel.

Vln. I 6 7 *p* *pp*

Vln. II 7 6 *p* *pp* 6 7 7 6 7

Vla. 7 7 6 7 6 6 7 7 6 7 6

Vc. *p* 5 5 5 5 *pp* 5 5 5 5 *p* 5 5 *pp* 5 5

Cb.

[illegible]

[illegible]

61

Fl.

Ob.

Cl.

Bsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

Vln. I

Vln. II

Vla.


Vc.

Cb.

mp

poco accel.

F



64

Fl.

Ob.

Cl.

Contrabassoon

Cbsn.

Hn.

C Tpt.

Tbn.

Tba.

Perc.

Hp.

F



Vln. I

Vln. II

Vla.

Vc.

Cb.

67 Piccolo

Picc. *mf* 6 5 3 6 5

Ob. 3 6 5 3 6

Cl. 5 6 7 6 5 6 7 6

Cbsn.

Hn. *f* *mf*

C Tpt. *f* *mf* 6 5

Tbn. 3 3 3 3

Tba.

Perc. *cresc.*

Hp.

Vln. I *poco accel.* 6 5 7 7 6 5

Vln. II 7 6 3 *p* 6 5

Vla. 6 7 7 6 6 5 7 6

Vc. 5 3 7 6 5 5

Cb.

G

molto accel.

71 $\text{♩} = 112$

Picc. *f* 7 6 5 6 7

Ob. *f* 6 5 7

Cl. *f* 5 6 7 6 5 6 7 6

Cbsn. *f*

Hn. 7 6 5 7

C Tpt. *f* 6 5 7 6

Tbn.

Tba.

Perc. *f*

Hp.

G

molto accel.

$\text{♩} = 112$

Vln. I *f* 7 6 5 7 6 5 7 6

Vln. II *f* 5 7 7 6 5 7 6 5

Vla. *f* 6 5 6 7 7 6 5 7

Vc. *f* 6 5 7

Cb. *f*

[illegible]

75

Picc. *molto cresc.* 7 6 5 8^{va}

Ob. *molto cresc.* 7 6 5 7

Cl. *molto cresc.* 6 7 7 6 5

Cbsn. *molto cresc.*

Hn. *molto cresc.*

C Tpt. *molto cresc.* 7 6

Tbn. *molto cresc.*

Tba. *molto cresc.*

Perc. Sus. Cym. (soft mallets) *pp*

Hp. *gliss.* [D C B | E F G A] *mp* *gliss.* *molto cresc.* *gliss.* 8^{vb}

Vln. I 7 6 6 *molto cresc.* 6 7 6

Vln. II 6 5 *molto cresc.* 7 6 5

Vla. 7 6 5 5 *molto cresc.* 7 6 5

Vc. 7 *molto cresc.* 6 5 7

Cb. *molto cresc.*

30

30 **♩=208 Implode!**

Picc. *fff* *abrupt silence*

Ob. *fff* *abrupt silence*

Cl. *fff* *abrupt silence*

Cbsn. *fff* *abrupt silence*

Hn. *fff* *abrupt silence*

C Tpt. *fff* *abrupt silence*

Tbn. *fff* *abrupt silence*

Tba. *fff* *abrupt silence*

Perc. *fff* *abrupt silence*

Hp. *gliss.* *8va* *8vb* *fff* *abrupt silence*

♩=208 Implode!

Vln. I *fff* *abrupt silence*

Vln. II *fff* *abrupt silence*

Vla. *fff* *abrupt silence*

Vc. *fff* *abrupt silence*

Cb. *fff* *abrupt silence*