

Michael Gandolfi

Imaginary Numbers

This work was commissioned by:

Paul and Linnea Bert

*In honor of their longtime friendship with Dede and Tony Spano and Robert Spano, Music
Director of the Atlanta Symphony Orchestra.*

M51 Music (ASCAP)

michaelgandolfi.com

Instrumentation

2 Flutes
1 Oboe
1 Bb Clarinet
1 Bassoon

2 French Horns in F
1 C Trumpet
1 Tenor Trombones

Harp

Timpani

2 Percussionists

Vibraphone, Glockenspiel, Tubular Chimes
Snare Drum, Bass Drum, Bongos
Large Gong, Medium Suspended Cymbal, Ride Cymbal, Crash Cymbals, Small Splash Cymbal
Wood Blocks, Tambourine, Triangle, Mark Tree, Vibraslap, Ratchet

Oboe solo
Bb Clarinet Solo
French Horn in F
Bassoon

Strings

Performance Notes

Score is transposed.

Accidentals remain in effect for the duration of the measure, only at the octave in which they occur. They are sometimes rewritten within a measure for clarity.

Approximate duration: 25 minutes

Program Listing

Imaginary Numbers (2015) Michael Gandolfi (b. 1956)

I. Sky and Water
II. Duetti Misteriosi
III. Hymn of the Five Suns
IV. Mandelbrot's Rondo

Program Notes

Paul and Linnea Bert, of the Memphis Symphony, have been strong supporters of my work, with which they became acquainted through the Atlanta Symphony Orchestra performances of my music over the years. As a consequence of this, Paul and Linnea have scheduled and commissioned several works of mine, and have overseen the premieres and performances of these works by the Memphis Symphony.

What began as a professional relationship quickly developed into a wonderful friendship, which led to the couple's most recent request that I compose a concerto for four soloists and orchestra. The choice of the soloists' instrumentation (oboe, clarinet, French horn and bassoon) was Paul and Linnea's, but it is anything but arbitrary. Paul and Linnea are longstanding friends of Robert Spano and his parents, Tony and Dede Spano. Paul asked that this piece acknowledge their friendship. Early on in their lives, the two couples played three of the four instruments (Tony - clarinet, Dede - oboe, Linnea - bassoon, Paul - oboe). All four love the French horn. Linnea and Dede literally grew up together, playing in band and orchestra from their childhoods.

It was a pleasure for me to accept this commission, and to dedicate my work to these wonderful people as well as to the Atlanta Symphony Orchestra. It is a work that celebrates a loving friendship and a shared passion for music.

In preparing the piece, I studied Haydn's *Sinfonia Concertante*, a glorious concerto for four soloists (oboe, bassoon, violin and 'cello). My first thought was to use that as a model. However, when I started composing, I quickly realized that I was diverging from this initial intent. I did choose an orchestra that is comparable in size to Haydn's, but I add a second flute (Haydn uses one), trumpet, trombone, harp, and percussion; and I use one orchestral oboe and one orchestral bassoon, as opposed to Haydn's choice to use two of each. In summary, the weight of each orchestral complement is somewhat similar, albeit my instrumentation is a bit heftier and affords more color, without delving into the extravagances of a Romantic-era or modern-era full-orchestra, which I felt was unsuitable for the more intimate result that I was seeking in this work.

Imaginary Numbers is cast in four movements, totaling about twenty-five minutes in length. Its title is a play on words. 'Imaginary number' is a term coined by Descartes to describe a mathematical concept that today is known as a 'complex number.' 'Number' might also refer to a dance, as in a dance 'number.' I play with both meanings in the piece.

The first movement, *Sky and Water*, derives from an M.C. Escher lithograph. *Sky and Water I.*, the title of Escher's work, depicts geese descending from the sky that smoothly morph into fish as they enter the water. I composed a rhythmical pattern that has two interpretations (one pulsates, the other 'swings') that morph from one to the other (and back) in the course of the movement; a musical corollary to Escher's visual work.

The second movement, *Duetti Misteriosi*, is a pas-de-deux (duet dance), which casts playful music alongside mysterious music. Its elaborate form expresses a carefully circumscribed symmetry that is wound around a raging, middle section.

The third movement, *Hymn of the Five Suns*, is a chorale with episodes that feature the soloists' individual voices, all of which I hear as a slow dance. 'Five Suns' is a term found in creation myths. The Aztecs and Nahua peoples refer to the 'Five Suns' as five cycles of creation and destruction, four of which they claim have already occurred. The Hymn-like quality of the opening chorale led me to this title.

The fourth movement, *Mandelbrot's Rondo*, is a fast-paced romp that affords the soloists and orchestra the opportunity to display their technical wares before closing the piece. Benoit B. Mandelbrot was a mathematician, best known for his formulas and theories in the field of fractal geometry. One of these his formulas known as the Mandelbrot Set, creates recursive or self-repeating spirals of remarkable beauty and complexity. To express this musically, I created a recursive form that turns back on itself in myriad ways.

I am indebted to Paul, Linnea, Tony and Dede for their longstanding support of my work and for their warm and enduring friendship. I am also indebted to the fine soloists of the Atlanta Symphony Orchestra. I am blessed to have such extraordinary artists presenting my work. Last, but certainly not least, I am indebted to Robert Spano and the Atlanta Symphony Orchestra for their years of unswerving support of my music; but more importantly, for all that they do to ensure the highest level of artistry that has been the hallmark of their existence, and has defined their position at the top of the ranks of the greatest musical institutions of our time.

-Michael Gandolfi

Imaginary Numbers

Transposed Score

Michael Gandolfi (2015)

I. Sky and Water

Presto ♩ = 176

Flute 1 (2+3) 5

Flute 2

Oboe

Clarinet in B♭

Bassoon

Horn in F 1

Horn in F 2

Trumpet in C

Trombone

Harp L.V. sempre

Timpani III II

Percussion

Crash Cymbals

Oboe Solo (2+3) (2+2+3) (2+2+2+3)

Clarinet in B♭ Solo

Horn in F Solo

Bassoon Solo

Violin 1

Violin 2

Viola

Violoncello

Contrabass

9

14

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

ff

IV.

16

20

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

ff

f

ff

f

26

This page of the musical score covers measures 23 through 30. The instrumentation includes Flutes 1 and 2, Oboe, Bass Clarinet, Bassoon, Horns 1 and 2, Trumpet, Trombone, Harp, Timpani, Percussion, Cymbals, Violins 1 and 2, Viola, Violoncello, and Contrabass. The score features complex rhythmic patterns with frequent rests and dynamic markings such as *f*, *ff*, and *mf*. A box containing the number '26' is positioned above the first staff. The music concludes with a final measure (measure 30) featuring a prominent *f* dynamic marking.

35

This page of the musical score covers measures 30 through 35. The score is arranged in a multi-staff format with the following instruments and parts:

- Fl. 1 & 2:** Flute parts with intricate melodic lines and slurs.
- Ob.:** Oboe part, mostly silent with some sustained notes in the later measures.
- B♭ Cl.:** Bass Clarinet part, featuring sustained notes and dynamic markings.
- Bsn.:** Bassoon part, providing a rhythmic and harmonic foundation.
- Hn. 1 & 2:** Horn parts with sustained notes and dynamic markings.
- C Tpt.:** Trumpet part, mostly silent.
- Tbn.:** Trombone part, providing harmonic support.
- Hp.:** Harp part, with a melodic line in the right hand.
- Timp.:** Timpani part, with rhythmic patterns.
- Perc.:** Percussion part, including **Tubular Chimes** starting in measure 35.
- Cr. Cym.:** Cymbal part, with occasional accents.
- Ob. (2nd):** A second Oboe part, mirroring the first.
- B♭ Cl. (2nd):** A second Bass Clarinet part.
- Hn. (2nd):** A second Horn part.
- Bsn. (2nd):** A second Bassoon part.
- Vln. 1 & 2:** Violin parts with rhythmic patterns.
- Vla.:** Viola part with sustained notes.
- Vc.:** Violoncello part with sustained notes.
- Cb.:** Contrabass part with sustained notes.

The score includes various musical notations such as slurs, accents, and dynamic markings (e.g., *f*). The key signature and time signature are consistent throughout the page.

37

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Tub. Ch.

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

44

This page of the musical score covers measures 42 through 46. The score is for a full orchestra and includes the following parts:

- Fl. 1 & 2:** Flutes 1 and 2, both in treble clef with a 7/8 time signature. They play rapid sixteenth-note passages with slurs and accents.
- Ob.:** Oboe, treble clef, 7/8 time. It has a long, sustained note in measure 44 with a vibrato line above it.
- B♭ Cl.:** B-flat Clarinet, treble clef, 7/8 time. It plays a sustained note in measure 44 with a vibrato line above it.
- Bsn.:** Bassoon, bass clef, 7/8 time. It plays a melodic line with slurs and accents.
- Hn. 1 & 2:** Horns 1 and 2, both in treble clef with a 7/8 time signature. They play sustained notes in measure 44 with vibrato lines above them.
- C Tpt.:** C Trumpet, treble clef, 7/8 time. It plays a melodic line with slurs and accents.
- Tbn.:** Trombone, bass clef, 7/8 time. It plays a melodic line with slurs and accents.
- Hp.:** Harp, grand staff (treble and bass clefs, 7/8 time). It has a melodic line in measure 44 with a vibrato line above it.
- Timp.:** Timpani, bass clef, 7/8 time. It plays a rhythmic pattern with slurs and accents.
- Tub. Ch.:** Tubas, treble clef, 7/8 time. They play a melodic line with slurs and accents.
- Cr. Cym.:** Cymbals, percussion clef, 7/8 time. It plays a rhythmic pattern with slurs and accents.
- Ob. (2nd):** Oboe, treble clef, 7/8 time. It plays a melodic line with slurs and accents.
- B♭ Cl. (2nd):** B-flat Clarinet, treble clef, 7/8 time. It plays a melodic line with slurs and accents.
- Hn. (2nd):** Horn, treble clef, 7/8 time. It plays a melodic line with slurs and accents.
- Bsn. (2nd):** Bassoon, bass clef, 7/8 time. It plays a melodic line with slurs and accents.
- Vln. 1 & 2:** Violins 1 and 2, both in treble clef with a 7/8 time signature. They play a melodic line with slurs and accents.
- Vla.:** Viola, bass clef, 7/8 time. It plays a melodic line with slurs and accents.
- Vc.:** Violoncello, bass clef, 7/8 time. It plays a melodic line with slurs and accents.
- Cb.:** Contrabass, bass clef, 7/8 time. It plays a melodic line with slurs and accents.

47

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Tub. Ch.

Cr. Cym.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

52

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Tub. Ch.

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

57

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Tub. Ch.

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

64

(♩=♩)
(in 6)

62

Fl. 1

Fl. 2

Perc. Glockenspiel *mf*

Ob. *mp*

B♭ Cl. *mp*

Bsn. *mp*

Vln. 1 *pizz.* *mp*

Vln. 2 *pizz.* *mp*

Vla. *p*

Vc. *p*

Cb. *p*

70

(♩=♩)
(2+3) (2+2+3) (2+2+2+2+3)

73

67

Fl. 1 *p*

Fl. 2 *p*

Glk.

B♭ Cl. *mp*

Hn. *mp*

Bsn. *mp*

Vln. 1 *ppp*

Vln. 2 *ppp*

Vla. *ppp*

Vc. *ppp*

Cb. *ppp*

74 76 79

B♭ Cl. *ppp*

Vln. 1 *arco*

Vln. 2 *arco p*

Vla. *p*

Vc. *p*

83 85 88

Ob. *mp* *cresc.* *f*

B♭ Cl. *mp* *cresc.* *f*

Hn. *mp* *cresc.* *f*

Bsn. *mp* *cresc.* *f*

Vln. 1

Vln. 2

Vc.

92 100

Trgle. *p* *mp* *mf*

Ob. *f* *mf* *p* *mp* *mf*

B♭ Cl. *f* *mf* *p* *mp* *mf*

Hn. *f* *p* *mp* *mf* *f*

Bsn. *f* *p* *mp* *mf* *f*

Vln. 1 *p*

Vln. 2 *p*

Vla. *p*

Vc. *p*

Cb. *p*

Triangle

103 106 Ride Cymbal 112

R. Cym. *mp* *mf* *f* *mf* *mp*

Trgle. *f* *mf* *mp*

Ob. *mf*

B♭ Cl. *mf*

Hn. *mf*

Bsn. *mf*

Vln. 1 *f* *p* *f* *p*

Vln. 2 *f* *p* *f* *p*

Vla. *f* *p* *f* *p*

Vc. *f* *p* *f* *p*

Cb. *f* *p* *f* *p*



115

(in 4) (in 3)

Jazz swing-style
(tenuto marks indicate stress/emphasis)

114

R. Cym. *f*

Ob. (in 4) (in 3)

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

120 123

R. Cym. $\text{||} \frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$

Ob.

B \flat Cl.

Vln. 1 *p*

Vln. 2 *p*

Vla. *p*

Vc. *p*

Cb. *p*

Detailed description: This block contains the musical score for measures 120 through 123. The score is written for a full orchestra. The percussion part (R. Cym.) features a complex rhythmic pattern of eighth and sixteenth notes. The woodwinds (Ob., B \flat Cl.) play melodic lines with some rests. The strings (Vln. 1, Vln. 2, Vla., Vc., Cb.) provide harmonic support with sustained notes and some melodic movement. The dynamic marking *p* (piano) is used throughout. Measure numbers 120, 123, and 129 are indicated at the top of the score.



126 129

R. Cym. $\text{||} \frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$

Ob.

B \flat Cl.

Hn. *mf*

Bsn. *mf*

Vln. 1 *p*

Vln. 2 *p*

Vla. *p*

Vc. *p*

Cb. *p*

Detailed description: This block contains the musical score for measures 126 through 129. The score continues with the same orchestral forces. The woodwinds (Ob., B \flat Cl., Hn., Bsn.) have more active parts, with the Horns and Bassoon playing melodic lines. The strings continue to provide harmonic support. The dynamic marking *mf* (mezzo-forte) is used for the Horns and Bassoon, while *p* (piano) is used for the strings. Measure numbers 126 and 129 are indicated at the top of the score.

132

R. Cym. $\text{||} \frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ $\frac{9}{8}$ $\frac{12}{8}$

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

mf

138

142

Fl. 1

Fl. 2

B \flat Cl.

Hn. 1

Tbn.

Hp.

R. Cym.

Vib.

Ob.

B \flat Cl.

Hn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

p

mf (pedal to slurs)

mp

p

p

p

p

p

p

146

This page of the musical score contains measures 144 through 146. The instrumentation includes Flute 1 and 2, Oboe, Bass Clarinet, Bassoon, Horns 1 and 2, Trumpet, Trombone, Piano, Timpani, Percussion, Vibraphone, Oboe (second), Bass Clarinet (second), Horn (third), Bassoon (second), Violin 1 and 2, Viola, Violoncello, and Contrabass. Measures 144 and 145 feature active parts for Flute 1, Flute 2, Bass Clarinet, and Piano. The Flute parts play a melodic line with slurs and accents, while the Bass Clarinet and Piano provide harmonic support. Measure 146 is primarily a rest for most instruments, with the Oboe (second) playing a long, sustained note and the strings (Viola, Violoncello, and Contrabass) playing a low, sustained note. The score is written in a key with one flat and a 4/4 time signature.

154

150

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Vib.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

p

mf

p

pizz.

p

158

156

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Vib.

Ob.

B♭ Cl.

Hn.

Bsn.

mf

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

162 165

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Perc.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

p

mf

f

arco

p

mf

174

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

R. Cym.

Perc.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

f

177

Musical score for measures 177-179. The score includes parts for R. Cym., Ob., B♭ Cl., Hn., Bsn., Vln. 1, Vln. 2, Vla., Vc., and Cb. The time signature changes from 12/8 to 9/8 and back to 12/8. Dynamics include *f* and *mp*.



180

Musical score for measures 180-183. The score includes parts for R. Cym., Ob., B♭ Cl., Hn., Bsn., Vln. 1, Vln. 2, Vla., Vc., and Cb. The time signature changes from 12/8 to 9/8 and back to 12/8. Dynamics include *f*.

184

Musical score for measures 184-187. The score is for a symphony orchestra and includes parts for R. Cym., Ob., B♭ Cl., Hn., Bsn., Vln. 1, Vln. 2, Vla., Vc., and Cb. The music is in 3/8 time and features complex rhythmic patterns and melodic lines across all instruments.



188

Musical score for measures 188-191. The score continues from the previous page and includes parts for R. Cym., Ob., B♭ Cl., Hn., Bsn., Vln. 1, Vln. 2, Vla., Vc., and Cb. The music maintains the 3/8 time signature and continues with intricate melodic and rhythmic development.

191

194

(2+3) (2+2+3) (2+2+2+3)
(poco accent sempre)

R. Cym.

Trgle.

f

Triangle

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

197

200

203

R. Cym.

Trgl.

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

p *cresc.* *f*

mp cresc. *f*

mf cresc. *f*

f

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

ppp *p*

ppp *p*

ppp *p*

ppp *p*

ppp *p*

ppp *p*

p arco

ppp *p*

204 206

R. Cym. *f* *p* *f* *mp* *p* *f*

Trgl. *p* *p* *f* *mp* *p*

Ob. *p* *p* *f*

B♭ Cl. *p* *f*

Hn. *p* *f*

Bsn. *p* *f* *p*

Vln. 1 *f* *p* *p* *f*

Vln. 2 *f* *p* *p* *f*

Vla. *f* *p* *f*

Vc. *f* *p* *f*

Cb. *f* *p* *f*

Detailed description: This block contains the musical score for measures 204 through 206. The score is for a full orchestra. The top two staves are for the right cymbal (R. Cym.) and triangle (Trgl.). The woodwinds include Oboe (Ob.), B-flat Clarinet (B♭ Cl.), Horn (Hn.), and Bassoon (Bsn.). The strings include Violin 1 (Vln. 1), Violin 2 (Vln. 2), Viola (Vla.), Violoncello (Vc.), and Contrabass (Cb.). The time signature changes from 7/8 to 9/8 at measure 205. Dynamic markings include *f* (forte), *p* (piano), *mp* (mezzo-piano), and *mf* (mezzo-forte). A rehearsal mark is present at measure 206.

211 212 215

R. Cym. *p* *f*

Trgl. *f* *mf* *p*

Ob. *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *f*

Vln. 1 *p* *mf*

Vln. 2 *p* *mf*

Vla. *p* *mf*

Vc. *p* *mf*

Cb. *p* *mf*

Detailed description: This block contains the musical score for measures 211 through 215. The score is for a full orchestra. The top two staves are for the right cymbal (R. Cym.) and triangle (Trgl.). The woodwinds include Oboe (Ob.), B-flat Clarinet (B♭ Cl.), Horn (Hn.), and Bassoon (Bsn.). The strings include Violin 1 (Vln. 1), Violin 2 (Vln. 2), Viola (Vla.), Violoncello (Vc.), and Contrabass (Cb.). The time signature changes from 9/8 to 3/4 at measure 212. Dynamic markings include *f* (forte), *mf* (mezzo-forte), and *p* (piano). Rehearsal marks are present at measures 212 and 215.

218 221

217

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

L.V. sempre

Timp.

Perc.

Cr. Cym.

Crash Cymbals

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

225

230

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

ff

IV.

Detailed description: This is a page of a musical score for a symphony. The page is numbered 27 in the top right corner. The title 'Imaginary Numbers - I. Sky and Water' is at the top center. The score is in 7/8 time. It features a variety of instruments: Flutes 1 and 2, Oboe, Bass Clarinet, Bassoon, Horns 1 and 2, Trumpet, Trombone, Harp, Timpani, Percussion, Cymbals, Violins 1 and 2, Viola, Violoncello, and Double Bass. The score is divided into two systems. The first system starts at measure 225 and ends at measure 230. The second system starts at measure 230 and ends at measure 235. There are dynamic markings of *f* and *ff*. There are also some performance instructions like 'IV.' for the timpani. The notation includes notes, rests, slurs, and articulation marks.

This page of a musical score contains measures 232 through 236. The instruments listed on the left are: Fl. 1, Fl. 2, Ob., B♭ Cl., Bsn., Hn. 1, Hn. 2, C Tpt., Tbn., Hp., Timp., Perc., Cr. Cym., Ob., B♭ Cl., Hn., Bsn., Vln. 1, Vln. 2, Vla., Vc., and Cb. The score is written in 3/8 time. Measure 232 is marked with a box containing the number 236. The music features various dynamics such as *f* and *ff*, and includes articulation marks like accents and slurs. The woodwinds and strings play melodic lines, while the percussion and cymbals provide rhythmic accompaniment.

242

Musical score for 'Imaginary Numbers - I. Sky and Water', page 29, measures 239-242. The score is for a full orchestra and includes the following parts:

- Fl. 1
- Fl. 2
- Ob.
- B♭ Cl.
- Bsn.
- Hn. 1
- Hn. 2
- C Tpt.
- Tbn.
- Hp.
- Timp.
- Perc.
- Cr. Cym.
- Ob.
- B♭ Cl.
- Hn.
- Bsn.
- Vln. 1
- Vln. 2
- Vla.
- Vc.
- Cb.

Measure 239 is marked with a dynamic of *f*. Measure 242 features a dynamic of *ff* for the woodwinds and strings, and *mf* for the horns. The score includes various musical notations such as slurs, accents, and dynamic markings.

246 251

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc. Tubular Chimes

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

254 257

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
Tub. Ch.
Cr. Cym.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

Detailed description: This page of a musical score contains measures 253 through 257. The score is arranged in systems for various instruments. The top system includes Flute 1 and 2, Oboe, Bass Clarinet, and Bassoon. The second system includes Horn 1 and 2, Trumpet in C, and Trombone. The third system includes Harp, Timpani, Tubachord, and Cymbal. The fourth system includes Oboe, Bass Clarinet, Horn, and Bassoon. The bottom system includes Violin 1 and 2, Viola, Violoncello, and Contrabass. The music features complex rhythmic patterns, including sixteenth-note runs in the flutes and sustained notes in the woodwinds. Dynamic markings such as *f* and *mf* are present. Rehearsal marks are indicated by boxed numbers 254 and 257. The score is written in a key signature of one flat and a 3/8 time signature.

260

258

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Tub. Ch.

Cr. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

This page of a musical score, numbered 34, contains measures 268 through 272. The score is for a large ensemble, including woodwinds, brass, percussion, and strings. The woodwind section consists of two flutes (Fl. 1 and Fl. 2), oboe (Ob.), B-flat clarinet (B♭ Cl.), bassoon (Bsn.), horn 1 (Hn. 1), horn 2 (Hn. 2), and C trumpet (C Tpt.). The brass section includes trombone (Tbn.), tuba (Tub. Ch.), and cymbal (Cr. Cym.). The percussion section features a timpani (Timp.). The string section includes violin 1 (Vln. 1), violin 2 (Vln. 2), viola (Vla.), violoncello (Vc.), and double bass (Cb.).

Measure 268 is marked with a box containing the number 269. Measure 272 is marked with a box containing the number 272. The score shows complex rhythmic patterns, including sixteenth-note runs in the flutes and sustained notes in the woodwinds and strings. The percussion part features a prominent timpani roll in measure 269. The string section provides a steady accompaniment with eighth-note patterns.

275

This page of the musical score covers measures 273 to 275. The score is for a full orchestra and includes the following parts:

- Fl. 1 & 2:** Flutes 1 and 2, both playing rapid sixteenth-note passages with slurs.
- Ob.:** Oboe, playing a sustained, tremulous line.
- B♭ Cl.:** Bass Clarinet, playing a sustained, tremulous line.
- Bsn.:** Bassoon, playing a melodic line with slurs.
- Hn. 1 & 2:** Horns 1 and 2, playing sustained, tremulous lines.
- C Tpt.:** Trumpet in C, playing a melodic line with slurs.
- Tbn.:** Trombone, playing a melodic line with slurs.
- Hp.:** Harp, playing a sustained tremolo.
- Timp.:** Timpani, playing a rhythmic pattern.
- Tub. Ch.:** Tubas and Contrabass, playing a melodic line with slurs.
- Cr. Cym.:** Cymbals, playing a rhythmic pattern.
- Ob.:** Oboe, playing a melodic line with slurs.
- B♭ Cl.:** Bass Clarinet, playing a melodic line with slurs.
- Hn.:** Horn, playing a melodic line with slurs.
- Bsn.:** Bassoon, playing a melodic line with slurs.
- Vln. 1 & 2:** Violins 1 and 2, playing a melodic line with slurs.
- Vla.:** Viola, playing a melodic line with slurs.
- Vc.:** Violoncello, playing a melodic line with slurs.
- Cb.:** Contrabass, playing a melodic line with slurs.

The score is written in 7/8 time and features a variety of articulations, including slurs, accents, and dynamic markings.

280

(♩=♩)
(in 6)

Fl. 1 *p*

Fl. 2 *p*

Perc. *Glock.* L.V. *mf*

Ob. *mp*

B♭ Cl. *mp*

Bsn. *mp*

Vln. 1 *mp* *pizz.*

Vln. 2 *mp* *pizz.*

Vla. *p*

Vc. *p*

Cb. *p*

286

(♩=♩)
(2+3)

(2+2+3)

(2+2+2+3)

Fl. 1 *p*

Fl. 2 *p*

Hp. *mf*

Glk. L.V.

Hr. *mp* *pp* *mp*

Bsn. *mp*

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

289 292

Fl. 1 *mf* *cresc.*

Fl. 2 *mf* *cresc.*

Ob. *mf* *cresc.*

B♭ Cl. *mf* *cresc.*

Bsn. *mp* *cresc.*

Hn. 1 *mp* *cresc.*

Hn. 2 *mp* *cresc.*

C Tpt.

Tbn. *mf* *cresc.*

Hp. *f*

Timp.

Tub. Ch. *mp* *mf*

Perc.

Ob. *mf* *cresc.*

B♭ Cl. *mf* *cresc.*

Hn. *mf* *cresc.*

Bsn. *mf* *cresc.*

Vln. 1 *mf* *cresc.* arco

Vln. 2 *p* *cresc.* arco

Vla. *cresc.*

Vc. *p* *cresc.*

Cb. *mf* *cresc.*

(in 4)

Musical score for measures 295-300. The score is for a full orchestra and includes the following parts:

- Fl. 1
- Fl. 2
- Ob.
- B♭ Cl.
- Bsn.
- Hn. 1
- Hn. 2
- C Tpt. (*mf cresc.*)
- Tbn.
- Hp. (*ff*)
- Timp.
- Tub. Ch. (*f*)
- B. Dr. (*ff*)
- Ob. (*f cresc.*)
- B♭ Cl.
- Hn.
- Bsn.
- Vln. 1 (*ff*)
- Vln. 2 (*ff*)
- Vla. (*ff*)
- Vc. (*ff*)
- Cb. (*ff*)

Measure 295 starts with a **295** measure number. The score features complex rhythmic patterns with frequent changes in time signature (3/8, 7/8, 9/8, 12/8). Dynamic markings include *ff*, *f*, and *mf cresc.*. A **Bass Drum** part is introduced in measure 300. The tempo change to **(in 4)** occurs at the beginning of measure 300.

II. Duetti Misteriosi

Allegro ♩ = 100

Fl. 1 6

Fl. 2

Timp. *mf*

Perc. *mf* **Wood Blocks**

Perc. *mf* **Med. Susp. Cymbal** **Triangle** **Crash Cymbals**

Allegro ♩ = 100

Ob. *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *f*

Vln. 1 *mf*

Vln. 2 *mf*

Cb. *mf* pizz.

Hp. 16 21

Timp.

Perc. *mf* **Bongos**

Perc. *mf* **Triangle** **Vibraslap**

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla. *mf*

Vc. *mf* pizz.

Cb. *mf*

83 88

Fl. 1 *mf* *f*

Fl. 2 *mf* *f*

Ob. *mf* *f*

B♭ Cl. *mf* *f*

Bsn. *f* *f*

Hn. 1 *f*

Hn. 2 *f*

C Tpt.

Tbn.

Hp.

Timp. *f* *mf*

Cr. Cym. *f*

Trgle. *f* Triangle *f*

Ob. *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *f*

Vln. 1 *f* *mf* *f*

Vln. 2 *f* *mf* *f* *mf*

Vla. *f* *mf* *f*

Vc. *f* pizz. *mf* *f* arco *mf*

Cb. *f* pizz. *mf* *f* arco *mf*

Fl. 1 93 96 99

Fl. 2 *f*

Ob.

B♭ Cl.

Bsn. *f*

Hn. 1

Hn. 2

C Tpt.

Tbn. *f* senza sord.

Hp. *p* *f*

Timp. *f*

Perc.

Trgle. *f*

Ob. *p* *f* *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *p* *f* *f*

Vln. 1 *mf* *f*

Vln. 2 *f* *f*

Vla.

Vc. *f*

Cb. *f* pizz.

102 109

Fl. 1

Fl. 2

Tbn.

Hp.

Timp.

Cr. Cym. *p* < >

B. Dr. *mf* Bass Drum *mf*

Ob.

B♭ Cl. *mf*

Hn.

Bsn.

Vln. 1 *p* < >

Vln. 2 *p* < >

Vla. *p* < >

Vc. *p* < >

Cb. *p* < > arco



113 116

Ob. *mf*

B♭ Cl.

Hn.

Bsn.

122 125 130

Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vc.
Cb.

mf
mp
mp
p
ppp

131 134

Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vc.
Cb.

mf
mp
pizz.
mp

139 143 148

B♭ Cl.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

mf
mf
arco

149 154 158

Fl. 1

Fl. 2

B♭ Cl.

Hp. *mf*

B. Dr. *p*

Ob.

B♭ Cl.

Hn.

Bsn. *p*

Vln. 1

Vln. 2

Vla.

Vc. *pizz.*

Cb. *p*

159 162 166

Fl. 1

Fl. 2

B♭ Cl.

Hp. *cresc.*

B. Dr. *cresc.*

Ob. *p cresc.*

B♭ Cl. *p cresc.*

Hn. *p mp mf*

Bsn. *mp mf cresc.*

Vc. *p cresc.*

Cb. *cresc.*

178 180 184

Hn. 1
Hn. 2
C Tpt.
Tbn.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

186 188

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

192

Fl. 1 *ff*

Fl. 2 *ff*

Ob. *ff*

B♭ Cl. *ff*

Bsn. *ff*

Hn. 1 *ff*

Hn. 2 *ff*

C Tpt. *ff*

Tbn. *ff*

Hp. *ff*

Timp. *ff*

Cr. Cym. *ff*
Crash Cymbals

B.D. *ff*
Bass Drum

Ob. *ff*

B♭ Cl. *ff*

Hn. *ff*

Bsn. *ff*

Vln. 1 *ff*

Vln. 2 *ff*

Vla. *ff*
arco

Vc. *ff*
arco

Cb. *ff*

197

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
Cr. Cym.
B.D.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

202

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
Cr. Cym.
B.D.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

dim.
pp
dim.
pp
dim.
pp
dim.
dim.
dim.
dim.
f
mp
pp
f
mp
pp
dim.
dim.
dim.
dim.
dim.

207 G.P. 211 215

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Perc.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

Detailed description of the musical score: The score is for a symphony orchestra. It begins at measure 207. The woodwind section (Flutes 1 & 2, Oboe, Clarinets in B♭ and Bassoon, Horns 1 & 2, Trumpets in C, Trombones) has a 'G.P.' (Grave) section starting at measure 211. The strings (Violins 1 & 2, Viola, Violoncello, Contrabass) play a melodic line with triplets and are marked *ppp*. The percussion section includes Timpani and Percussion. The score concludes at measure 215. Dynamic markings include *pp*, *mf*, and *ppp*. The time signature is 2/4.

218 220 228

Fl. 1 *mp*

Fl. 2 *mp*

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn. *mp*

Hp. *mp*

Timp. *mf*

Perc. *mp* Triangle *mf* Crash Cymbals

Ob.

B♭ Cl.

Hn.

Bsn. *mp*

Vln. 1 *mf*

Vln. 2 *mf*

Vla. *mp* pizz. arco *mf*

Vc. *mp* pizz. *mf*

Cb. *mp*

230 233 239

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc. Wood Blocks *mf*

Perc. Triangle *mf*

Perc. Mark Tree *mp* L.V. (sempre)

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb. *pizz.* *mf*

242

244

249

254

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

M.T.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

255 263

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
Perc.
Perc.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

pp *p* *mf* *p*

p *mf* *p*

pp *p* *mf* *p*

Larghetto ♩ = 60

9

Ob. *p*

B♭ Cl. *p*

Hn. *p*

Bsn. *p*

Vln. 1 *p* con sord.

Vln. 2 *p* con sord.

Vla. *p* con sord.

Vc. *mp* *espress.*



17

22

Hn. 1 *pp* con sord.

Hn. 2 *pp* con sord.

C Tpt. *pp* (con sord.)

Tbn. *pp* (con sord.)

Hp. *mp*

Gng. **Large Gong**

B. Dr. *mp* **Bass Drum**

Ob. *p*

B♭ Cl. *p*

Hn. *p*

Bsn. *p*

Vln. 1 *pp* div. a 3 (top note only is harmonic, others ord.)

Vln. 2 *pp* div. a 3

Vla. *pp* con sord. div. a 3

Vc. *pp* con sord. div. a 3

Cb. *pp*

24 27 31

Hp.
Timp.
Gng.
B. Dr.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

Detailed description: This block contains the first system of the musical score, covering measures 24 to 31. It features a grand piano (Hp.) with a melodic line in the right hand and a bass line in the left hand. The woodwinds (Ob., B♭ Cl., Hn., Bsn.) and strings (Vln. 1, Vln. 2, Vla., Vc., Cb.) are also present. Measure numbers 24, 27, and 31 are indicated in boxes. A dynamic marking of *p* is shown in the Timp. part.

35 39 43

Fl. 1
Fl. 2
B♭ Cl.
Hn. 1
Hp.
Timp.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

Detailed description: This block contains the second system of the musical score, covering measures 35 to 43. It features a pair of flutes (Fl. 1, Fl. 2) with a melodic line in the right hand and a bass line in the left hand. The woodwinds (B♭ Cl., Hn. 1, Ob., B♭ Cl., Hn., Bsn.) and strings (Vln. 1, Vln. 2, Vla., Vc., Cb.) are also present. Measure numbers 35, 39, and 43 are indicated in boxes. Dynamic markings of *ppp* and *pp* are shown in the Fl. 1, Fl. 2, and Hn. 1 parts. A marking "(con sord.)" is present in the B♭ Cl. part.

47 51 55

Ob. *p* *pp*

B \flat Cl. *p*

Hn. *p*

Bsn. *p*

Vln. 1 *pp*

Vln. 2 *p* *pp*

Vla. *p* *pp*

Vc. *p* *pp*

Cb. *pp*



58 62 68

Gng. *p*

B. Dr. *p*

Ob. *pp* *poco, sempre*

B \flat Cl. *pp* *poco, sempre*

Hn. *poco, sempre*

Bsn. *poco, sempre* *pp* *poco, sempre*

Vln. 1 *pp* *pp* *poco, sempre*
div. a 3
(top note only is harmonic, others ord.)

Vln. 2 *pp* *pp* *poco, sempre*
div. a 3

Vla. *pp* *pp* *poco, sempre*
div. a 3

Vc. *pp* *pp* *poco, sempre*
div. a 3

Cb. *pp* *pp* *poco, sempre*
div. a 3

71 76 80

Timp. *pp*

Gng.

B. Dr.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1 *ppp* senza cresc.

Vln. 2 *ppp* senza cresc.

Vla. *ppp* senza cresc.

Vc. *ppp* senza cresc.

Cb. *ppp* senza cresc.

84 88 rit.

Fl. 1 *p*

Fl. 2 *p*

Hp. *p*

Timp. *pp*

Gng.

B. Dr.

Ob. *p* *pp* rit.

B♭ Cl. *p* *pp*

Hn. *p* *pp*

Bsn. *p* *pp*

Vln. 1 *ppp*

Vln. 2 *ppp*

Vla. *ppp*

Vc. *ppp*

Cb. *ppp*

IV. Mandelbrot's Rondo

Presto ♩. = 160

B♭ Cl. *f*

Bsn. *f*

Presto ♩. = 160

Ob. *f*

B♭ Cl. *f*

Hn. *f* (senza trill)

Bsn. *f*

Vln. 1 *f* senza sord.

Vln. 2 *f* senza sord.

Vla. *f* senza sord.

Vc. *f* senza sord.

Cb. *f* senza sord. pizz.



B♭ Cl. *f*

Bsn. *f*

Ob. *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *f*

Vln. 1 *f* pizz.

Vln. 2 *f* pizz.

Vla. *f* pizz. arco

Vc. *f* pizz. arco

Cb. *f*

17

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

Perc.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

ff

ff

f

f

mf

Senza sord.

mf

Senza sord.

mf

ff

ff

f

f

arco

pizz.

arco

f

arco

f

(pizz.)

16

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

ff

Senza sord.

mf

f

21

Bsn.

Tbn.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

25

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp. *sempre simile*

S. D. **Snare Drum**

Perc.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc. arco

Cb.

This page of the musical score for "Imaginary Numbers - IV. Mandelbrot's Rondo" features a variety of instruments. The woodwinds (Flutes 1 & 2, Oboe, Bass Clarinet, Bassoon) and brass (Horns 1 & 2, Trumpet, Trombone) sections play rhythmic patterns, often with accents and dynamic markings like *ff*. The percussion section includes Snare Drum and Triangle. The strings (Violin 1 & 2, Viola, Violoncello, Contrabass) provide harmonic support, with the Viola and Violoncello playing steady eighth-note patterns. The Oboe, Bass Clarinet, and Horn parts feature melodic lines with long slurs and dynamic markings such as *ff*. The score is written in a key with one flat and a 2/4 time signature. The page number 68 is in the top left corner, and the title "Imaginary Numbers - IV. Mandelbrot's Rondo" is at the top center.

40 41

B♭ Cl. *f*

Bsn. *f*

Timp. *f*

Perc. *f* **Tambourine**

Ob. *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *f*

Vln. 1 *f*

Vln. 2 *f*

Vla. *f*

Vc. *f* *pizz.*

Cb. *f*

f

45

B♭ Cl. *f*

Bsn. *f*

Tbn. *fp*

Hp. *f*

Timp. *f* *tr*

Perc. *f* **Crash Cymbals** *f* **Vibraslap**

Perc. *f* **Triangle (mounted)** **Small Splash Cymbal**

Ob. *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *f*

Vln. 1 *f*

Vln. 2 *f*

Vla. *f* *pizz.*

Vc. *f* *pizz.*

Cb. *f* *arco*

fp

50 53

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

M. Sus. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

fp

fp

fp

f

ff

ff

f

mf

fp

fp

fp

f

ff

p

f

f

pizz.

arco

pizz.

arco

pizz.

arco

pizz.

arco

pizz.

arco

pizz.

ff

ff

pizz.

fp

fp

fp

f

pizz.

55

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

M. Sus. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1
arco
f

Vln. 2
f

Vla.

Vc.

Cb.

Detailed description of the musical score: The score is for a symphonic band or orchestra. It begins at measure 55. The woodwinds (Flutes 1 and 2, Oboe, B♭ Clarinet, Bassoon) play a melodic line starting with a forte (*f*) dynamic. The strings (Violins 1 and 2, Viola, Violoncello, Contrabass) provide harmonic support with a similar melodic line. The brass (Horn 1, Horn 2, Trumpet C, Trombone) and percussion (M. Sus. Cym.) have specific parts, with the M. Sus. Cym. playing a sustained note that transitions from piano (*p*) to forte (*f*). The Harp and Timpani are present but have minimal activity in this section. The score is written in a common time signature and features various musical notations such as slurs, accents, and dynamic markings.

60

Fl. 1 *ff*

Fl. 2 *ff*

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn. *f*

Hp.

Timp.

Perc.

M. Sus. Cym. *p* *f*

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

64 65

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
S. D.
Perc.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

p *cresc.* *sempre simile* *mp* *p* *cresc.* *arco* *p* *cresc.*

73

69

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

S. D.

Perc.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

mp *cresc.*

mf *cresc.*

f *cresc.*

Musical score for Imaginary Numbers - IV. Mandelbrot's Rondo, page 75. The score begins at measure 74. The instruments listed are Fl. 1, Fl. 2, Ob., B♭ Cl., Bsn., Hn. 1, Hn. 2, C Tpt., Tbn., Hp., Timp., S. D., Perc., Ob., B♭ Cl., Hn., Bsn., Vln. 1, Vln. 2, Vla., Vc., and Cb. The score is divided into four measures. The first measure (74-75) features woodwinds and strings playing active parts. The second measure (76-77) continues this texture. The third measure (78-79) shows a significant increase in dynamics, marked with *ff* (fortissimo), and includes a crash cymbal entry. The fourth measure (80-81) maintains the high intensity with various instruments. The key signature has two flats (B♭ and E♭), and the time signature is 4/4. The score is written in black ink on a white background.

79

81

Fl. 1

Fl. 2

B♭ Cl.

Hn. 1

C Tpt.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

pp

pp

pp

pp

pp

pp

pp

pp

pp

con sord.

84

87

Fl. 1

Fl. 2

B♭ Cl.

Hn. 1

C Tpt.

Hrp.

Ob.

B♭ Cl.

Hn.

Bsn.

mp

mp

pp

pp

mp

mp

pp

mp

90

Fl. 1
Fl. 2
B♭ Cl.
Hn. 1
C Tpt.
Hp.
Perc.
Ob.
B♭ Cl.
Hn.
Bsn.

pp *mp* *pp*

Detailed description: This block contains the musical score for measures 90 through 95. The score is arranged in a standard orchestral format with staves for Flute 1 and 2, Clarinet in B-flat, Horn 1, Trumpet in C, Piano, Percussion, Oboe, Clarinet in B-flat, Horn, and Bassoon. Measures 90-95 feature a complex texture with multiple melodic lines. The piano part has a long, sweeping line with a dynamic range from *pp* to *mp*. The woodwinds have various melodic fragments and sustained notes. The percussion part is mostly silent with occasional accents.

96

Fl. 1
Fl. 2
B♭ Cl.
Hn. 1
C Tpt.
Hp.
Perc.
Ob.
B♭ Cl.
Hn.
Bsn.

mp *p* *f* *p*

Detailed description: This block contains the musical score for measures 96 through 101. The instrumentation remains the same as in the previous block. Measures 96-101 show a continuation of the orchestral texture. The piano part features a dynamic shift from *mp* to *p*, *f*, and back to *p*. The woodwinds have more active melodic lines, with the Bassoon and Horn parts showing dynamic markings of *p*, *f*, and *p*. The percussion part continues to be mostly silent.

Musical score for Imaginary Numbers - IV. Mandelbrot's Rondo, page 80. The score includes parts for Flutes 1 & 2, Oboe, Bass Clarinet, Bassoon, Horns 1 & 2, Trumpets, Trombones, Harp, Timpani, Snare Drum, Percussion, Clarinet, Bassoon, Violins 1 & 2, Viola, Violoncello, and Contrabass. The score is marked with dynamics such as *ff* and *f*. The piece begins at measure 111. The score is arranged in a standard orchestral layout with woodwinds and brass in the upper staves, strings and percussion in the lower staves. The key signature is one flat (B-flat major or D minor), and the time signature is 4/4. The score features complex rhythmic patterns, including sixteenth and thirty-second notes, and dynamic markings such as *ff* (fortissimo) and *f* (forte). The percussion part includes a snare drum and crash cymbals, with a specific instruction for *f* Crash Cymbals. The woodwinds and brass parts are highly melodic and rhythmic, often playing in unison or in close harmony. The string parts provide a rich harmonic and rhythmic foundation, with the violins and violas playing sustained chords and the cellos and contrabasses playing rhythmic patterns. The overall texture is dense and complex, characteristic of a rondo in a symphonic work.

117 119

117 119

B♭ Cl. *f*

Bsn. *f*

Ob. *f*

B♭ Cl. *f*

Hn.

Bsn.

Vln. 1 *f*

Vln. 2 *f*

Vla. *f*

Vc. *f*

Cb. *f*
pizz.

122

B♭ Cl. *f*

Bsn. *f*

Timp. *f* *tr*

Perc. *f* **Crash Cymbals** *f* **Vibraslap** *f* **Triangle (mounted)** *f*

Perc. *f* **Tambourine** *f*

Ob. *f*

B♭ Cl. *f*

Hn. *f*

Bsn. *f*

Vln. 1 *f*

Vln. 2 *f*

Vla. *f*

Vc. *f*

Cb. *f*

127 131

Fl. 1 *ff*

Fl. 2 *ff*

Ob.

B♭ Cl. *f*

Bsn. *fp* *fp* *fp* *fp* *f*

Hn. 1

Hn. 2 *mf*

C Tpt.

Tbn. *fp* *fp* *fp* *fp*

Hp. *f* *ff*

Timp.

Perc. *Small Splash Cymbal*

Perc. *Med. Susp. Cymbal* *p* *f*

Ob.

B♭ Cl.

Hn. *f*

Bsn.

Vln. 1 *pizz.* *arco* *ff* *pizz.*

Vln. 2 *pizz.* *arco* *ff* *pizz.*

Vla. *pizz.* *arco*

Vc. *pizz.* *arco*

Cb. *arco* *pizz.* *fp* *fp* *fp* *fp*

132

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

M. Sus. Cym.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

mf

p

f

arco

f arco

f

137

Fl. 1 *f* *ff*

Fl. 2 *f* *ff*

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

M. Sus. Cym. *p* *f*

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

141 143

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
S. D.
Perc.
Ob.
B♭ Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

p *cresc.* *mp* *f* *mp* *p* *cresc.* *mp* *p* *arco* *cresc.* *p* *cresc.* *sempre simile* *p* *cresc.* *mp* *f* *mp* *p* *cresc.*

Snare Drum

146

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

S. D.

Perc.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

mp *cresc.*

mf

151

Fl. 1 *mf* *cresc.* *ff*

Fl. 2 *mf* *cresc.* *ff*

Ob. *mf* *cresc.* *ff*

B♭ Cl. *mf* *cresc.* *ff*

Bsn. *mf* *cresc.* *ff*

Hn. 1 *mf* *cresc.* *f*

Hn. 2 *mf* *cresc.* *f*

C Tpt. *mf* *cresc.* *f*

Tbn. *mf* *cresc.* *f*

Hp. *ff*

Timp. *mf* *cresc.* *ff*

S. D. *mf* *cresc.* *f* Crash Cymbals

Perc. *f*

Ob. *f* *cresc.* *ff*

B♭ Cl. *f* *cresc.* *ff*

Hn. *f* *cresc.* *ff*

Bsn. *f* *cresc.* *ff*

Vln. 1 *mf* *cresc.* *ff*

Vln. 2 *mf* *cresc.* *ff*

Vla. *mf* *cresc.* *ff*

Vc. *mf* *cresc.* *ff*

Cb. *mf* *cresc.* *ff*

157 159

Fl. 1

Fl. 2

B♭ Cl.

Hn. 1

C Tpt.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

pp

con sord.

pp

pp

pp

162 165

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Hn. 1

Hn. 2

C Tpt.

Ob.

B♭ Cl.

Hn.

Bsn.

mp

pp

mp

pp

p

mf

p

mf

p

mf

mf

168

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Hn. 1
Hn. 2
C Tpt.
Ob.
B♭ Cl.
Hn.
Bsn.

pp
pp
pp
p *mf* *p* *mf* *p*

Detailed description: This system of musical notation covers measures 168 to 173. It features ten staves for various instruments: Flute 1, Flute 2, Oboe, Bass Clarinet, Horn 1, Horn 2, Trumpet, Oboe, Bass Clarinet, Horn, and Bassoon. The music is written in a key with two flats and a common time signature. Measures 168-170 show a complex interplay of melodic lines with many slurs and ties. Dynamic markings include *pp* (pianissimo) and *p* (piano). Measures 171-173 continue the melodic development, with dynamic markings of *mf* (mezzo-forte) and *p*.

174

Fl. 1
Fl. 2
Ob.
B♭ Cl.
Hn. 1
Hn. 2
C Tpt.
Ob.
B♭ Cl.
Hn.
Bsn.

pp
mp
mp *pp*
pp *mp*
mf *p* *mf* *p* *f* *p*
p *f* *p*

Detailed description: This system of musical notation covers measures 174 to 179. It features the same ten instruments as the previous system. Measures 174-176 show a continuation of the melodic lines, with dynamic markings of *pp* and *mp*. Measures 177-179 feature a more active melodic line for the Horn and Bassoon, with dynamic markings of *mf*, *p*, *f*, and *p*. The music concludes with a final dynamic of *p*.

179

Fl. 1
Fl. 2
Ob.
B \flat Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
S. D. *mp* *mf* *f cresc.*
Perc.
Ob. *pp* *mp* *p*
B \flat Cl. *pp* *mp* *p*
Hn. *pp* *mp* *p* *f* *p*
Bsn. *p* *f* *p* *p* *f* *p* *p*
Vln. 1 *pp* *p* *mp* *mf* *f cresc.*
Vln. 2 *pp* *p* *mp* *mf* *f cresc.*
Vla. *pp* *p* *mp* *mf* *f cresc.*
Vc. *pp* *p* *mp* *mf* *f cresc.*
Cb. *pp* *p* *mp* *mf* *f cresc.*

195

197

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

mf

mp

p

ff

200

205

Ob.

B \flat Cl.

Hn.

Bsn.

pp

p

mp

mf

206

Ob.

B \flat Cl.

Hn.

Bsn.

f

211

B♭ Cl. *f*

Bsn. *f*

Timp. *tr* *f*

Perc. *Crash Cymbals* *f*

Ob. *f*

B♭ Cl. *f*

Hn.

Bsn.

Vln. 1 *f*

Vln. 2 *f*

Vla. *f*

Vc. *f*

Cb. *f*

fizz.

216

B♭ Cl.

Bsn. *fp* *fp*

Tbn. *fp* *fp*

Hp. *f*

Timp. *tr* *f*

Perc. *Small Splash Cymbal* *f*

Ob. *f*

B♭ Cl. *f*

Hn.

Bsn. *f*

Vln. 1 *pizz.*

Vln. 2 *pizz.*

Vla. *pizz.* *arco*

Vc. *pizz.* *arco*

Cb.

221 223

Fl. 1

Fl. 2

Ob.

B♭ Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

M. Sus. Cym.

Ob.

B♭ Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

fp *ff* *f* *mf* *f* *pp* *f* *arco* *pizz.* *f* *arco* *f* *f* *arco* *f*

Med. Susp. Cymbal Ratchet

226

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Perc.

M. Sus. Cym.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f *mf* *ff*

mf *f* *f*

p *f* *p*

Triangle

Vibraslap

231

Fl. 1
Fl. 2
Ob.
B \flat Cl.
Bsn.
Hn. 1
Hn. 2
C Tpt.
Tbn.
Hp.
Timp.
Perc. Triangle
Tambourine
M. Sus. Cym.
Ob.
B \flat Cl.
Hn.
Bsn.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.

mf *ff* *mf* *ff* *mf* *f* *f* *f*

235

Fl. 1

Fl. 2

Ob.

B \flat Cl.

Bsn.

Hn. 1

Hn. 2

C Tpt.

Tbn.

Hp.

Timp.

Tamb.

M. Sus. Cym.

Ob.

B \flat Cl.

Hn.

Bsn.

Vln. 1

Vln. 2

Vla.

Vc.

Cb.

f

f

vin

vin

