

GEOMETRY
(HOMAGE TO SCHILLINGER)

FOR THREE RETUNED, COMPUTER-DRIVEN
PIANOS

KYLE GANN
2021

Technical Specifications

The 33-pitch tuning of the three pianos (the same in every octave) is as follows, given first in the number of cents above E-flat, and then as ratios to the nearest E-flat 1/1 below:

Piano	1		2		3	
D	1088	15/8	977	225/128	1044	117/64
Db	969	7/4	938	55/32	906	27/16
C	857	105/64	773	25/16	840	13/8
B	738	49/32	755	99/64	729	195/128
Bb	702	3/2	590	45/32	609	91/64
A	551	11/8	551	11/8	481	169/128
Ab	471	21/16	440	165/128	408	81/64
G	386	5/4	320	77/64	342	39/32
Gb	204	9/8	275	75/64	275	75/64
F	155	35/32	192	143/128	192	143/128
E	92	135/128	53	33/32	27	65/64
Eb	0	1/1	1103	121/64	1173	63/32

Note that no string needs to be raised higher than its natural tuning except for the B-flat on piano 1, which is 2¢ sharp (or if one prefers, 2¢ could be subtracted from all quantities).

For electronic realization of the piece, it can prove helpful to reconfigure the tuning as a reference pitch in cycles per second for each piano, and ratios derived from that standard:

Tuning pitch:	38.891 cps	36.7641 cps	38.2833 cps
D	15/8	225/121	13/7
Db	7/4	20/11	12/7
C	105/64	200/121	104/63
B	49/32	18/11	65/42
Bb	3/2	180/121	13/9
A	11/8	16/11	169/126
Ab	21/16	15/11	9/7
G	5/4	14/11	26/21
F#	9/8	150/121	25/21
F	35/32	13/11	143/126
E	135/128	12/11	65/63
Eb	1/1	1/1	1/1

In the configuration of certain tuning softwares, the following sequences might facilitate getting the required tuning:

Piano 1:

38.891 = Eb0

1/1, 135/128, 35/32, 9/8, 5/4, 21/16, 11/8, 3/2, 49/32, 105/64, 7/4, 15/8

Piano 2:

36.7641485 = Eb0

1/1, 12/11, 13/11, 150/121, 14/11, 15/11, 16/11, 180/121, 18/11, 200/121, 20/11, 225/121

Piano 3:

38.283333 = Eb0

1/1, 65/63, 143/126, 25/21, 26/21, 9/7, 169/126, 13/9, 65/42, 104/63, 12/7, 13/7

For purposes of analysis, the entire scale (which I refer to as my 8x8 scale) is given below, grouping its pitches into eight harmonic series' on the 1st, 3rd, 5th, 7th, 9th, 11th, 13th, and 15th harmonics of E-flat, and naming each pitch in a typographical equivalent of Ben Johnston's just-intonation notation:

Pitch name	Ratio	Cents	1/1	3/2	5/4	7/4	9/8	11/8	13/8	15/8
Db^^-	121/64	1103						11		
D	15/8	1088	15	5	3					1
Db13	117/64	1044					13		9	
C#+	225/128	977								15
Db7	7/4	969	7			1				
C^	55/32	938			11			5		
C+	27/16	906		9			3			
C7+	105/64	857				15				7
Cb13	13/8	840	13						1	
B	25/16	773			5					
Bb^	99/64	755					11	9		
Cb77+	49/32	738				7				
Bb13	195/128	729							15	13
Bb	3/2	702	3	1						
Bbb713	91/64	609				13			7	
A+	45/32	590		15	9		5			3
Ab^	11/8	551	11					1		
Abb1313	169/128	481							13	
Ab7+	21/16	471		7		3				
G^	165/128	440						15		11
G+	81/64	408					9			
G	5/4	386	5		1					
Gb13	39/32	342		13					3	
Gb7^	77/64	320				11		7		
F#+	75/64	275			15					5
F+	9/8	204	9	3			1			
Fb13^	143/128	192						13	11	
F7+	35/32	155			7	5				
E+	135/128	92					15			9
Eb^	33/32	53		11				3		
Eb13	65/64	27			13				5	
Eb	1/1	0	1							
Eb7+	63/32	1173				9	7			

In Johnston's notation, + raises a pitch by 81/80, # raises it by 25/24, b lowers it by 24/25, 7 lowers it by 35/36, ^ raises it by 33/32, 13 raises it by 65/64, and F-A-C, C-E-G, and G-B-D are all perfectly tuned 4:5:6 major triads.

8x8 Three-Piano Tuning

Pitch:
Harmonic:
Cents:
Sibeliuss:

Eb	E+	F7+	F+	G	Ab7+	Ab^	Bb	Cb77+	C7+	Db7	D
1	135 (5x27)	35	9	5	21	11	3	49	105 (7x15)	7	15
0	92	155	204	386	471	551	702	738	857	969	1088

Piano 1

Db^^-	Eb^	Fb13^	F#+	Gb7^	G^	Ab^	A+	Bb^	B	C^	C#+
121	33	143	75	77	165 (11x15)11	11	45	99	25	55	225
1103	53	192	275	320	440	551	590	755	773	938	977

Piano 2

Eb7+	Eb13	Fb13^	F#+	Gb13	G+	Abb1313	Bb713	Bb13	Cb13	C+	Db13
63	65	143	75	39	81	169	195 (13x15)13	195 (13x15)13	13	27	117 (9x13)
1173	27	192	275	342	408	481	609	729	840	906	1044

Piano 3

Geometry

(Homage to Schillinger)

Kyle Gann
2021

♩ = 93

Piano 1

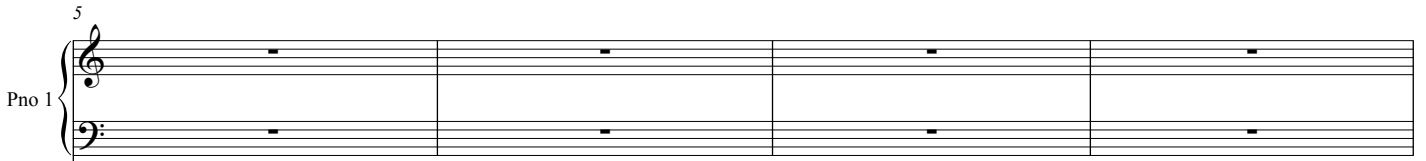
Piano 2

Piano 3

The score is for three pianos. Piano 1 is silent. Piano 2 has a melody in the right hand with slurs and sixteenth-note patterns, marked *mf*. The left hand has a bass line with slurs and sixteenth-note patterns, also marked *mf*. Piano 3 has a bass line with slurs and sixteenth-note patterns, marked *mf*. The tempo is 93 bpm.

5

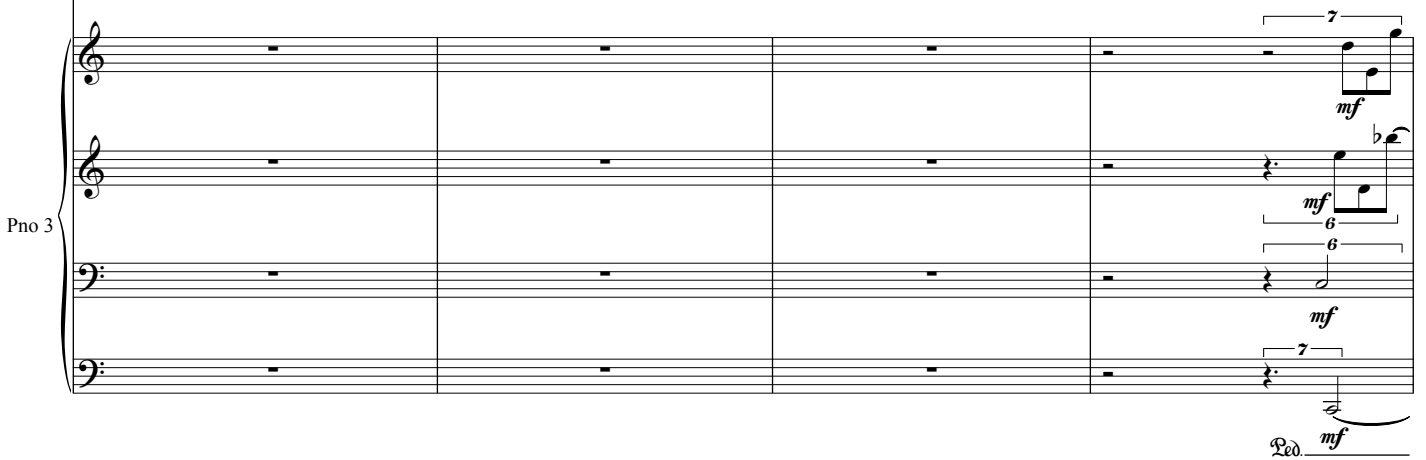
Pno 1



Pno 2



Pno 3



9

Pno 1

Pno 2

Pno 3

The musical score is divided into three parts: Pno 1, Pno 2, and Pno 3. Pno 1 and Pno 2 are mostly silent, indicated by horizontal lines with dashes. Pno 3 has four staves of music. The top staff is in treble clef and contains a melodic line with sixteenth-note runs and slurs, marked with '7'. The second staff is in treble clef and contains a line with slurs and sixths, marked with '6'. The third staff is in bass clef and contains a line with slurs and sixths, marked with '6'. The bottom staff is in bass clef and contains a line with slurs and sixths, marked with '7'. The score is set in a key with one flat and a 3/4 time signature.

Geometry

13

Pno 1

mf

mf

mf

mf

Ped.

Pno 2

Pno 3

mf

mf

mf

mf

Ped.

17

Pno 1

Pno 2

Pno 3

The musical score is divided into three parts: Pno 1, Pno 2, and Pno 3. Pno 1 consists of four staves. The top staff is in treble clef and contains a melodic line with eighth and sixteenth notes, featuring several 7th fingerings. The second staff is in treble clef and contains a line of dotted eighth notes with 6th fingerings. The third staff is in bass clef and contains a line of dotted eighth notes with 6th fingerings. The bottom staff is in bass clef and contains a melodic line with eighth and sixteenth notes, featuring several 7th fingerings. Pno 2 consists of two staves (treble and bass clef) that are completely silent, indicated by horizontal lines. Pno 3 consists of two staves (treble and bass clef). The top staff is in treble clef and contains arpeggiated chords with 7th fingerings. The bottom staff is in bass clef and is silent.

21

Pno 1

Pno 2

Pno 3

Red.

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score begins at measure 21. Pno 1 is the most active part, featuring a complex melodic line with many accidentals (sharps, flats, naturals) and fingerings (6, 7). The melody is written in a treble clef. Pno 2 is silent throughout the section. Pno 3 has a simpler melodic line, also in a treble clef, with fingerings (7). The score ends with a 'Red.' marking, likely indicating a reduction or a specific performance instruction. The overall style is contemporary or experimental, given the frequent use of accidentals and complex fingerings.

25

Pno 1

Pno 2

mf

Red.

Pno 3

Red.

Geometry

29

Pno 1

Ped.

Pno 2

Ped.

Pno 3

mf

Ped.

33

Pno 1

Pno 2

Pno 3

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score begins at measure 33. Pno 1 and Pno 2 have complex melodic lines with slurs and fingering (6, 7). Pno 3 has a more rhythmic accompaniment with slurs and fingering (6, 7). The score is written in treble and bass clefs for each piano part.

37

Pno 1

mp 5

f 6 6

mf 7 7

Ped.

Pno 2

f 6 6

mf 7 7

Ped.

Pno 3

mp 5

mp 7 7

f 7 7

mf 7 7

Ped.

Pno 1

Pno 2

Pno 3

45

Pno 1

Pno 2

Pno 3

mp

f

f

f

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains two staves (treble and bass clef). The first system (Pno 1) starts at measure 45. The second system (Pno 2) starts at measure 46. The third system (Pno 3) starts at measure 47. The score includes various musical notations such as notes, rests, and dynamic markings like *mp* and *f*. There are also some performance instructions like *mf* and *f* at the end of the piece.

48

Pno 1

Pno 2

Pno 3

The score for three pianos (Pno 1, Pno 2, Pno 3) begins at measure 48. Pno 1 (top system) features a melodic line in the bass clef with slurs and accents, including a double bar line in the first measure. Pno 2 (middle system) is mostly silent. Pno 3 (bottom system) has a complex texture with sixteenth-note runs, slurs, and accents, including a double bar line in the first measure.

Geometry

50

Pno 1

Pno 2

Pno 3

The musical score for three pianos (Pno 1, Pno 2, Pno 3) begins at measure 50. Pno 1 (top staff) features a bass line with a slur over two measures, an accent (*acc.*) on the first note, and a slur over the next two measures with an accent (*acc.*) on the final note. Pno 2 (middle staff) is silent. Pno 3 (bottom staves) consists of five staves. The top two staves of Pno 3 play sixteenth-note runs with slurs and accents, marked with '7' and '6' below. The bottom three staves of Pno 3 play a bass line with slurs and accents, marked with '6' and '7' below. The score concludes with a double bar line and a fermata over the final notes.

52

Pno 1

Pno 2

Pno 3

The musical score is divided into three systems. The first system, labeled 'Pno 1', shows a single melodic line in the bass clef with two measures. The second system, labeled 'Pno 2', shows two staves (treble and bass clefs) that are mostly empty, indicating a rest for this instrument. The third system, labeled 'Pno 3', consists of five staves. The top two staves (treble clefs) feature intricate sixteenth-note patterns with slurs and accents. The bottom three staves (bass clefs) feature a mix of rhythmic patterns, including slurs, accents, and rests, with some notes marked with '7' and '6'.

Geometry

54

Pno 1

Pno 2

Pno 3

The musical score is divided into three systems. The first system, labeled 'Pno 1', shows a bass clef with a treble clef above it. The bass line contains rests in the first two measures, followed by notes with accents and slurs. The second system, labeled 'Pno 2', shows both treble and bass clefs with rests throughout. The third system, labeled 'Pno 3', consists of five staves. The top staff has a treble clef and contains sixteenth-note patterns with slurs and fingerings (7). The second staff has a treble clef and contains sixteenth-note patterns with slurs and fingerings (6). The third staff has a bass clef and contains notes with slurs and fingerings (6). The fourth staff has a bass clef and contains notes with slurs and fingerings (7). The fifth staff has a bass clef and contains notes with slurs and fingerings (7). The score concludes with a double bar line and repeat signs.

56

Pno 1

Pno 2

Pno 3

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three systems, each with a grand staff (treble and bass clefs).
- **Pno 1:** The first system starts at measure 58. The right hand features a complex melodic line with frequent accidentals and slurs, with a '7' indicating a fingering. The left hand provides a harmonic accompaniment with slurs and a '7' fingering.
- **Pno 2:** The right hand has a melodic line with slurs and a '5' fingering. The left hand has a more static accompaniment with slurs and a '5' fingering.
- **Pno 3:** The right hand has a melodic line with slurs and a '6' fingering. The left hand has a harmonic accompaniment with slurs and a '6' fingering.
The notation includes various musical symbols such as slurs, ties, and specific fingering numbers (5, 6, 7) placed above or below notes.

Piano score for Pno 1, Pno 2, and Pno 3, measures 60-61. Pno 1 features complex 7th and 8th fingering patterns. Pno 2 features 5th fingering patterns. Pno 3 features 6th fingering patterns. The score includes treble and bass clefs, accidentals, and dynamic markings.

Repeat sign (//) followed by piano score for Pno 1, Pno 2, and Pno 3, measures 62-63. Pno 1 features complex 7th and 8th fingering patterns. Pno 2 features 5th fingering patterns. Pno 3 features 6th fingering patterns. The score includes treble and bass clefs, accidentals, and dynamic markings.

64

Pno 1

Pno 2

Pno 3

f

f

f

Red.

f

f

The score consists of three systems, each for a different piano (Pno 1, Pno 2, Pno 3).
Pno 1: The first system starts at measure 64. The right hand has a melodic line with slurs and a fermata, marked with a forte (*f*) dynamic. The left hand plays chords and moving lines. A 'Red.' (Reduction) marking is present below the staff.
Pno 2: The first system features a complex melodic line in the right hand with many slurs and a fermata. The left hand plays a steady accompaniment. A 'Red.' marking is present below the staff.
Pno 3: The first system has a melodic line in the right hand with slurs and a fermata. The left hand plays chords and moving lines. A 'Red.' marking is present below the staff.

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is written in a system with three staves. Pno 1 is in the top staff, Pno 2 in the middle, and Pno 3 in the bottom. Pno 1 has a treble clef and a key signature of one flat. It starts at measure 66. Pno 2 has a bass clef and a key signature of one flat. Pno 3 has a bass clef and a key signature of one flat. The score includes various musical notations such as notes, rests, and dynamic markings like *ff* and *ffz*. There are also some numerical markings like 7, 3, 6, and 3. The score is divided into three measures.

Piano 1 score, measures 69-72. The score consists of three staves: Treble, Middle, and Bass. Measure 69 features a complex treble staff with a slur and a fermata, marked with a forte dynamic (f). Measures 70-72 show a dynamic shift to mezzo-forte (mf) in the treble and mezzo-piano (mp) in the middle and bass staves. Fingerings of 11, 7, and 6 are indicated throughout.

Piano 2 score, measures 69-72. The score consists of three staves: Treble, Middle, and Bass. Measure 69 features a complex treble staff with a slur and a fermata, marked with a forte dynamic (f). Measures 70-72 show a dynamic shift to mezzo-forte (mf) in the treble and mezzo-piano (mp) in the middle and bass staves. Fingerings of 11, 7, and 6 are indicated throughout.

Piano 3 score, measures 69-72. The score consists of three staves: Treble, Middle, and Bass. Measure 69 features a complex treble staff with a slur and a fermata, marked with a forte dynamic (f). Measures 70-72 show a dynamic shift to mezzo-forte (mf) in the treble and mezzo-piano (mp) in the middle and bass staves. Fingerings of 11, 7, and 6 are indicated throughout.

73

Pno 1

Pno 2

Pno 3

77

Pno 1

mf

mp

mp

Pno 2

mf

mf

p 17

p 13

mp

p

mp

p

Red.

Pno 3

mf

mp

mp

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains two staves (treble and bass clef). Pno 1 starts at measure 77 with a dynamic of *mf*. Pno 2 has dynamics of *mf*, *p* (with fingerings 17 and 13), and *mp*. Pno 3 has dynamics of *mf*, *mp*, and *mp*. The score includes various musical notations such as slurs, ties, and fingering numbers (6, 7, 9, 11, 13, 17). A 'Red.' marking is present in the Pno 2 system.

81

Pno 1

mp 9 7 9 7 9 7

Pno 2

17 13 7 9 11 9 11 9 11 9

Pno 3

7 9 9 9 11 9

Detailed description: This is a page of a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The page begins at measure 81. Pno 1's part features a melodic line in the right hand with slurs and a bass line with chords and a dynamic marking of *mp*. Pno 2's part is more complex, with multiple staves showing intricate melodic and harmonic textures, including slurs and various note values. Pno 3's part consists of a melodic line in the right hand and a bass line with chords. The score includes various musical notations such as notes, rests, slurs, and dynamic markings.

Geometry

85

Pno 1

Pno 2

Pno 3

7 7 7 7

9 9 9 9

17 17 17 17 17

13 13 13 13 13

7 7 7 7

9 9 9 9 9

11 11 11 11

7 7 7 7 7

9 9 9 9 9

11 11

Geometry

90

The score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains four staves: two for the right hand and two for the left hand. The music features complex textures with many chords and rapid passages. Dynamics include *p* (piano) and *mp* (mezzo-piano). Fingerings such as 7, 5, 9, 11, and 13 are indicated throughout. Pedal markings (Ped.) are used to sustain chords. The score begins at measure 90 and continues through measure 94.

Geometry

95

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system consists of four staves: two for the right hand and two for the left hand. The music is in a key with one sharp (F#). The score includes various musical notations such as slurs, fingering (5, 7), dynamics (mp), and pedal markings (Ped.).

Pno 1: Features complex right-hand passages with slurs and fingering (5, 7). The left hand has a more active role with slurs and fingering (5, 7). Pedal markings are present at the bottom of the system.

Pno 2: Features a more melodic right-hand line with slurs and fingering (5, 7). The left hand has a steady accompaniment with slurs and fingering (5). Pedal markings are present at the bottom of the system.

Pno 3: Features a melodic right-hand line with slurs and fingering (5, 7). The left hand has a steady accompaniment with slurs and fingering (5). Pedal markings are present at the bottom of the system.

101

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three systems, each containing five measures. Pno 1 is the uppermost system, Pno 2 is the middle system, and Pno 3 is the lowermost system. Each system consists of a grand staff (treble and bass clefs). Pno 1 includes a key signature change to one sharp (F#) in the first measure and a dynamic marking of *mf* in the second measure. Pno 2 includes a dynamic marking of *mf* in the first measure. Pno 3 includes a dynamic marking of *mf* in the first measure. The score features various musical notations, including notes, rests, and fingerings (e.g., 5, 7, 11). There are also some markings like "Ped." and "11" (possibly indicating a double bar line or a specific technique). The overall layout is clean and professional, typical of a printed musical score.

The musical score is divided into three piano parts: Pno 1, Pno 2, and Pno 3. Pno 1 consists of five staves (treble, two grand staves, and two bass staves). Pno 2 consists of three staves (treble, grand staff, and bass). Pno 3 consists of five staves (treble, two grand staves, and two bass). The score begins at measure 107. Pno 1 features complex textures with chords, scales, and dynamic markings such as *p*, *mf*, and *p*. Pno 2 has a more sparse texture with some chords and scales. Pno 3 features a rhythmic pattern in the right hand and sustained chords in the left hand, with dynamic markings like *mf* and *p*. The score includes various musical notations such as slurs, ties, and dynamic markings.

113

Pno 1

Pno 2

Pno 3

p *mf* *p* *mf* *p* *mf* *p* *mf*

7 11 13 11 13 11 13 11

7 11 13 11 13 11 13 11

7 11 13 11 13 11 13 11

7 11 13 11 13 11 13 11

124

Pno 1

Pno 2

Pno 3

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). The first system (Pno 1) consists of five staves: two treble clefs and two bass clefs. The second system (Pno 2) also consists of five staves: two treble clefs and two bass clefs. The third system (Pno 3) consists of two staves, both in bass clef. The score is marked with measure numbers 124 through 129. It features complex rhythmic patterns with 9-measure and 11-measure groupings, slurs, and dynamic markings like 'p'. The notation includes various note values, rests, and articulation marks.

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is written in treble and bass clefs. Pno 1 starts at measure 134 with a treble clef, a key signature of one flat, and a dynamic of *mf*. It features a half note G4 with a flat, a whole note B3 with a flat, and a half note G4 with a flat. Pno 2 has a treble clef and a key signature of one sharp. It contains a complex passage with many notes, including a 9-measure phrase in the treble and an 11-measure phrase in the bass. Pno 3 has a treble clef, a key signature of one flat, and a dynamic of *mf*. It features a half note G4 with a flat and a whole note B3 with a flat. The score includes various musical notations such as notes, rests, dynamics, and fingerings.

Geometry

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is written on three systems of staves. Pno 1 is in the top system, Pno 2 in the middle, and Pno 3 in the bottom. Pno 1 has a treble clef and a key signature of two flats (B-flat and E-flat). It features a long, sustained note in the right hand with a fingering of 13, and a shorter note in the left hand with a fingering of 5. Pno 2 has a treble clef and a key signature of one sharp (F-sharp). It contains several measures of music, including a sequence of notes with a fingering of 9, and a complex chordal structure with a fingering of 7. Pno 3 has a treble clef and a key signature of one sharp (F-sharp). It contains a sequence of notes with a fingering of 11. The score includes various musical notations such as clefs, key signatures, notes, rests, and fingerings.

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three systems, each corresponding to one of the pianos.
Pno 1: The first system shows measures 136 and 137. The right hand has a whole rest in measure 136 and a half note in measure 137. The left hand has a whole note chord in measure 136 and a half note chord in measure 137. A large slur covers both measures, with a '13' below it.
Pno 2: The second system shows measures 136 and 137. The right hand has a series of eighth notes in measure 136 and a half note in measure 137. The left hand has a series of eighth notes in measure 136 and a half note in measure 137. A large slur covers both measures, with a '9' below it.
Pno 3: The third system shows measures 136 and 137. The right hand has a whole rest in measure 136 and a half note in measure 137. The left hand has a whole rest in measure 136 and a whole note chord in measure 137. A large slur covers both measures, with a '13' below it.
The score includes various musical notations such as notes, rests, slurs, and fingerings (e.g., 5, 7, 11, 13).

138

Pno 1

Pno 2

Pno 3

13

13

7

5

7

5

7

9

9

7

7

11

11

13

13

7

140

Pno 1

Pno 2

Pno 3

13

5

7

13

7

9

7

11

13

7

142

\flat $\frac{8}{8}$

Pno 1

13

5

Pno 2

9

7

11

Pno 3

143

Pno 1

Pno 2

Pno 3

13

5

7

9

7

11

13

7

13

7

Geometry

145

Pno 1

Pno 2

Pno 3

p

p

p

13

13

13

13

11

9

7

13

9

11

9

13

13

11

9

13

13

Pno 1

147 13 13

Pno 2

11 9 9 13 13

Pno 3

11 9 9 13 13

Geometry

149

Pno 1

Pno 2

Pno 3

mf
Ped.

153

Pno 1

mf

11

13

7

mf

mf

Pno 2

Pno 3

11

13

7

mf

13

7

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is divided into three systems, each with three staves (treble and bass clefs).
- **Pno 1:** The first system starts at measure 158. The top staff has a treble clef and contains a complex melodic line with slurs and dynamic markings. The middle staff has a treble clef and contains a rhythmic accompaniment with slurs and dynamic markings. The bottom staff has a bass clef and contains a rhythmic accompaniment with slurs and dynamic markings. A 'Ped.' (pedal) marking is present at the end of the first system.
- **Pno 2:** The second system shows Pno 2 with mostly rests in the first two measures, followed by a melodic entry in the third measure. The top staff has a treble clef and contains a melodic line with slurs and dynamic markings. The middle staff has a treble clef and contains a rhythmic accompaniment with slurs and dynamic markings. The bottom staff has a bass clef and contains a rhythmic accompaniment with slurs and dynamic markings.
- **Pno 3:** The third system shows Pno 3 with mostly rests in the first two measures, followed by a melodic entry in the third measure. The top staff has a treble clef and contains a melodic line with slurs and dynamic markings. The middle staff has a treble clef and contains a rhythmic accompaniment with slurs and dynamic markings. The bottom staff has a bass clef and contains a rhythmic accompaniment with slurs and dynamic markings.

Geometry

161

Pno 1

Musical score for Pno 1, measures 161-163. The system consists of three staves: Treble, Middle, and Bass. The Treble staff has a complex melodic line with slurs and fingering numbers 11 and 13. The Middle staff has a simpler line with slurs and fingering number 13. The Bass staff has a line with slurs and fingering number 7.

Pno 2

Musical score for Pno 2, measures 161-163. The system consists of three staves: Treble, Middle, and Bass. The Treble staff has a line with slurs and fingering number 11. The Middle staff has a line with slurs and fingering number 13. The Bass staff has a line with slurs and fingering number 7.

Pno 3

Musical score for Pno 3, measures 161-163. The system consists of three staves: Treble, Middle, and Bass. The Treble staff has a line with slurs and fingering number 11. The Middle staff has a line with slurs and fingering number 13. The Bass staff has a line with slurs and fingering number 7.

Pno 1

Musical score for Pno 1, measures 170-175. The score consists of four staves. The first two staves are in treble clef, and the last two are in bass clef. Dynamics include piano (*p*). Fingering numbers 9, 11, and 13 are indicated. Pedal markings (*Ped.*) are present at the end of measures 170, 172, 174, and 175.

Pno 2

Musical score for Pno 2, measures 170-175. The score consists of four staves. The first two staves are in treble clef, and the last two are in bass clef. Dynamics include piano (*p*) and mezzo-forte (*mf*). Fingering numbers 9, 11, and 13 are indicated. Pedal markings (*Ped.*) are present at the end of measures 170, 172, 174, and 175.

Pno 3

Musical score for Pno 3, measures 170-175. The score consists of four staves. The first two staves are in treble clef, and the last two are in bass clef. Dynamics include piano (*p*). Fingering numbers 9, 11, and 13 are indicated.

176

Pno 1

Pno 2

Pno 3

9, 11, 13, 15

f, *mp*, *p*

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is divided into three measures, numbered 181, 182, and 183. Each piano part consists of a treble and a bass clef staff. Pno 1 starts with a treble clef staff containing a 9-measure phrase and a bass clef staff with a 13-measure phrase. Pno 2 has a treble clef staff with a 11-measure phrase and a bass clef staff with a 13-measure phrase. Pno 3 has a treble clef staff with a 15-measure phrase and a bass clef staff with a 13-measure phrase. Dynamics include *p* (piano), *mp* (mezzo-piano), and *p* (piano). The score includes various musical notations such as slurs, ties, and accidentals.

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three systems, each with a treble and bass clef staff.
Piano 1 (Pno 1): The first system starts at measure 184. The treble staff features complex chords with accidentals (flats and naturals) and is marked with a '9' and a fermata. The bass staff has rests followed by notes marked with a '13' and a fermata.
Piano 2 (Pno 2): The treble staff contains chords marked with '11' and a fermata. The bass staff has notes marked with '13' and a fermata. A dynamic marking of *p* (piano) is present in the third measure.
Piano 3 (Pno 3): The treble staff has chords marked with '15' and a fermata. The bass staff has notes marked with '13' and a fermata. A dynamic marking of *p* is also present.
Throughout the score, various musical notations are used, including slurs, fermatas, and dynamic markings like *p* and *pppp*.

187

Pno 1

Pno 2

Pno 3

p 15 15 15 15

9 11 *p*

13 13 13 13

p 15 15 15 15

11 11 11 11

13 13 13 13

15 15 15 15

11 11 11 11

p

13 13 13 13

191

Pno 1

Pno 2

Pno 3

195

Pno 1

Pno 2

Pno 3

198

Pno 1 *15* *15* *15*

Pno 2 *11* *11* *11*

Pno 3 *13* *13* *13*

201

Pno 1 *15* *15* *15*

Pno 2 *11* *11* *11*

Pno 3 *13* *13* *13*

204

Pno 1 *15* *15* *15* *15*

Pno 2 *11* *11* *11* *11*

Pno 3 *13* *13* *13* *13*

208

Pno 1 *15* *15* *15* *15*

Pno 2 *11* *11* *11* *11*

Pno 3 *13* *13* *13* *13*

212

Pno 1

15 15 15 15 15 15

11 11 11

9 13

mp

Pno 2

11 11 11 11 11 11

Pno 3

13 13 13 13 13 13

13

mp

218

Pno 1

Pno 2

Pno 3

15 11 9 13 11 15 9 13 13 13 13 9 13 13 13 11 mp p p mp

Geometry

The musical score is arranged in three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains multiple staves for the instrument's parts. The notation includes treble and bass clefs, notes, rests, and various musical symbols. Dynamics such as *mp* (mezzo-piano) and *p* (piano) are indicated. Articulation marks like accents and slurs are used throughout. Fingerings are specified with numbers 9, 11, 13, and 15. The score is divided into measures by vertical bar lines, with some measures containing complex rhythmic patterns and others being rests.

The image displays a complex musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three main systems, each containing multiple staves. Pno 1 consists of six staves, Pno 2 of two, and Pno 3 of six. The notation includes treble and bass clefs, various note values, rests, and specific fingering instructions such as 9, 11, 13, and 3. The music is written in a key signature of one flat (B-flat major or D minor) and a 3/4 time signature. The score is divided into measures by vertical bar lines, with some measures containing multiple beams and slurs indicating complex rhythmic patterns and phrasing. The overall layout is dense and detailed, typical of a professional musical manuscript.

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three systems. Each system contains multiple staves for each piano, with various musical notations including notes, rests, and dynamic markings. Fingerings are indicated by numbers 9, 11, and 13. The notation includes slurs, ties, and specific articulation marks. The score is presented in a clean, black-and-white format.

The image displays a complex musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three main systems, each containing multiple staves. Pno 1 is the most prominent, with a grand staff (treble and bass clefs) and several staves of music. Pno 2 and Pno 3 are also shown with grand staves. The notation includes various musical elements such as notes, rests, and fingerings. Fingerings are indicated by numbers 9, 11, and 13, often with brackets or lines connecting them to the notes. There are also some unusual symbols, like a 'V' in a box and a '7' with a flat sign. The score is set in a key with two flats (B-flat and E-flat) and a common time signature. The overall layout is clean and professional, typical of a published musical score.

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains multiple staves. Pno 1 has seven staves, Pno 2 has two, and Pno 3 has five. The notation includes treble and bass clefs, various note values, rests, and complex fingerings indicated by numbers 9, 11, and 13. Some notes are beamed together, and there are many slurs and ties. The key signature has one flat (B-flat), and the time signature is 4/4. The score is for measures 240 through 243.

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three main systems, each corresponding to one of the pianos. Each system contains multiple staves, with Pno 1 having the most staves (eight), Pno 2 having two, and Pno 3 having four. The notation includes treble and bass clefs, various note values (quarter, eighth, sixteenth notes), rests, and complex rhythmic patterns. Fingerings are indicated by numbers 9, 11, and 13. The score is set in a key signature of two flats (B-flat and E-flat) and a 7/8 time signature. The page number 244 is in the top left, and 63 is in the top right.

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains multiple staves. Pno 1 has six staves, Pno 2 has two staves, and Pno 3 has five staves. The notation includes treble and bass clefs, various note values (quarter, eighth, sixteenth notes), rests, and complex fingerings such as 9, 11, and 13. There are also some accidentals like flats and sharps. The score is written in a standard musical notation style with a clear layout of staves and measures.

Pno 1

Pno 2

Pno 3

The musical score is arranged in three systems, one for each piano (Pno 1, Pno 2, Pno 3). Each system contains multiple staves. Pno 1 has six staves, Pno 2 has two staves, and Pno 3 has five staves. The notation includes treble and bass clefs, various note values (quarter, eighth, sixteenth notes), rests, and complex fingerings such as 9, 11, and 13. There are also dynamic markings like *mf* and *f*. The score is written in a key signature of two flats (B-flat and E-flat).

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains multiple staves with musical notation. The notation includes notes, rests, and various musical symbols such as slurs, ties, and dynamic markings. Fingerings are indicated by numbers 9, 11, and 13. The score is written in a key signature with one flat (B-flat) and a time signature of 3/4. The music features complex rhythmic patterns and melodic lines across the different instruments.

Piano 1 score, measures 267-270. The score consists of eight staves. The top two staves are in treble clef, and the bottom six staves are in bass clef. The music features complex rhythmic patterns with frequent rests and slurs. Numerical annotations '9', '11', and '13' are placed above various notes and groups of notes, likely indicating fingerings or specific rhythmic values. The notation includes various note values, rests, and slurs.

Piano 2 score, measures 267-270. The score consists of two staves in treble clef. The music is mostly rests, with some melodic fragments appearing in the second measure. Numerical annotations '13' are present above notes in the second and third measures.

Piano 3 score, measures 267-270. The score consists of four staves. The top two staves are in treble clef, and the bottom two staves are in bass clef. The music features complex rhythmic patterns with frequent rests and slurs. Numerical annotations '9', '11', and '13' are placed above various notes and groups of notes, likely indicating fingerings or specific rhythmic values. The notation includes various note values, rests, and slurs.

Piano 1 score, measures 271-274. The score consists of seven staves. The top two staves are treble clef, and the bottom three are bass clef. The middle two staves are grand staff. Fingerings 9, 11, and 13 are indicated throughout. A large slur covers the first two measures, and another large slur covers the last two measures.

Piano 2 score, measures 271-274. The score consists of two staves, both in treble clef. Fingerings 13 are indicated. A large slur covers the last two measures.

Piano 3 score, measures 271-274. The score consists of five staves. The top two are treble clef, and the bottom three are bass clef. Fingerings 9 and 13 are indicated. A large slur covers the first two measures, and another large slur covers the last two measures.

Piano 1 score, measures 275-280. The score is written for a grand piano with treble and bass clefs. It features complex rhythmic patterns, including sixteenth and thirty-second notes, and rests. Fingerings are indicated by numbers 1-5. Dynamics include *p* (piano) and *pp* (pianissimo). Articulation marks like accents and slurs are present. Measure numbers 6, 7, 11, 13, and 17 are marked above the staves.

Piano 2 score, measures 275-280. The score is written for a grand piano with treble and bass clefs. It features complex rhythmic patterns, including sixteenth and thirty-second notes, and rests. Fingerings are indicated by numbers 1-5. Dynamics include *p* (piano) and *pp* (pianissimo). Articulation marks like accents and slurs are present. Measure numbers 13, 17, and 21 are marked above the staves.

Piano 3 score, measures 275-280. The score is written for a grand piano with treble and bass clefs. It features complex rhythmic patterns, including sixteenth and thirty-second notes, and rests. Fingerings are indicated by numbers 1-5. Dynamics include *p* (piano) and *pp* (pianissimo). Articulation marks like accents and slurs are present. Measure numbers 9, 13, and 17 are marked above the staves.

280

Pno 1

Pno 2

Pno 3

285

Pno 1

Pno 2

Pno 3

290

Pno 1

Pno 2

Pno 3

mp *p* *mp* *p* *mp* *p* *mp* *p*

6 7 6 7 6 7 6 7 6 7

11 6 7 6 7 6 7 6 7

Geometry

295

Pno 1

Pno 2

Pno 3

mp *p* *mp* *p* *mp* *p*

mp *p* *mp* *p* *mp* *p*

mp *p* *mp* *p* *mp* *p*

300

Pno 1

Pno 2

Pno 3

The musical score is divided into three systems, each for a different piano.
 - **Pno 1** (measures 300-304): Consists of six staves. The top two staves are in treble clef, and the bottom four are in bass clef. Dynamics include *mp* and *p*. Articulations include accents and slurs.
 - **Pno 2** (measures 300-304): Consists of two staves in treble clef. Dynamics include *mp* and *p*. Articulations include accents and slurs.
 - **Pno 3** (measures 300-304): Consists of two staves in treble clef. Dynamics include *mp* and *p*. Articulations include accents and slurs.
 The score includes various musical notations such as slurs, accents, and dynamic markings.

305

Piano score for three pianos (Pno 1, Pno 2, Pno 3). The score is divided into three systems. The first system includes measures 305-310. Dynamics include *mp*, *p*, and *mf*. Fingerings are indicated by numbers 11, 6, 7, 5, and 8. The second system includes measures 311-316. Dynamics include *mf* and *p*. The third system includes measures 317-322. Dynamics include *mf*. The score concludes with a *Red.* marking.

311

Pno 1

Pno 2

Pno 3

317

Pno 1

Pno 2

Pno 3

324

Pno 1

Red.

Pno 2

Red.

Pno 3

Red.

331

Pno 1

Pno 2

Pno 3

Red.

The musical score is divided into three systems, each for a different piano. Pno 1 consists of six staves (treble, bass, and four grand staves). Pno 2 consists of three staves (treble, bass, and grand). Pno 3 consists of two staves (treble and grand). The score includes various musical notations such as notes, rests, and fingerings. The first system (measures 331-334) features complex fingerings like 11, 6, 7, 9, and 5. The second system (measures 335-338) continues with similar fingerings and includes a 'Red.' marking. The third system (measures 339-342) concludes with further fingerings and a 'mp' dynamic marking.

335

Piano score for Pno 1, measures 335-340. The score consists of six staves. The top two staves are treble clef, and the bottom four are bass clef. The music features complex rhythmic patterns with many sixteenth notes and triplets. Fingerings are indicated by numbers 1-5. A dynamic marking of *mp* is present at the start of the second measure.

Piano score for Pno 2 and Pno 3, measures 335-340. Pno 2 is on the top two staves (treble clef) and Pno 3 is on the bottom two staves (treble clef). The music continues with complex rhythmic patterns and fingerings. Dynamic markings of *mp* are present in both parts.

Geometry

337

Piano 1 (Pno 1) score, measures 337-342. The score consists of five staves: Treble, Bass, Treble, Bass, and Bass. It features complex rhythmic patterns with numerous slurs and fingering numbers (7, 9, 11, 5, 6) indicating difficult passages.

Piano 2 (Pno 2) score, measures 337-342. The score consists of four staves: Treble, Bass, Treble, and Bass. It features complex rhythmic patterns with numerous slurs and fingering numbers (9, 11, 5, 6, 7) indicating difficult passages.

Piano 3 (Pno 3) score, measures 337-342. The score consists of three staves: Treble, Bass, and Bass. It features complex rhythmic patterns with numerous slurs and fingering numbers (7, 6, 9, 11) indicating difficult passages.

Pno 1

Pno 2

Pno 3

341

Piano score for three pianos (Pno 1, Pno 2, Pno 3). The score is divided into two systems. The first system covers measures 341-342, and the second system covers measures 343-344. Pno 1 has five staves, Pno 2 has three staves, and Pno 3 has two staves. The notation includes treble and bass clefs, notes, rests, and various fingerings (3, 5, 6, 7, 9, 11). Pno 1 features a prominent melodic line in the upper right staff of the first system, while Pno 2 and Pno 3 provide harmonic support with complex rhythmic patterns and chords.

Piano 1 score, measures 343-345. The score consists of five staves. The top staff has a treble clef and contains a melodic line with slurs and fingering (5, 6, 7, 11). The second staff has a treble clef and contains a complex rhythmic pattern with slurs and fingering (9, 6, 9, 6). The third staff has a treble clef and contains a melodic line with slurs and fingering (7, 11). The fourth staff has a bass clef and contains a melodic line with slurs and fingering (7, 11). The fifth staff has a bass clef and contains a melodic line with slurs and fingering (9, 11). A dynamic marking *p* is present at the end of the first measure.

Piano 2 score, measures 343-345. The score consists of four staves. The top staff has a treble clef and contains a melodic line with slurs and fingering (9). The second staff has a treble clef and contains a complex rhythmic pattern with slurs and fingering (5, 6, 7, 11). The third staff has a treble clef and contains a melodic line with slurs and fingering (7, 11). The fourth staff has a bass clef and contains a melodic line with slurs and fingering (7, 11). A dynamic marking *p* is present at the end of the first measure.

Piano 3 score, measures 343-345. The score consists of three staves. The top staff has a treble clef and contains a melodic line with slurs and fingering (6, 9, 6). The middle staff has a treble clef and contains a melodic line with slurs and fingering (11). The bottom staff has a bass clef and contains a melodic line with slurs and fingering (11). A dynamic marking *p* is present at the end of the first measure.

346

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is organized into three systems, each containing two staves (treble and bass clef). The first system (Pno 1) begins at measure 346. The top staff of Pno 1 features a melodic line with repeated eighth-note patterns, marked with a forte dynamic (*f*) and a slur. The middle staff of Pno 1 contains a bass line with a forte dynamic (*f*) and a slur. The bottom staff of Pno 1 has a bass line with a forte dynamic (*f*) and a slur. The second system (Pno 2) continues the melodic and bass lines. The top staff of Pno 2 has a melodic line with a forte dynamic (*f*) and a slur. The middle staff of Pno 2 has a bass line with a forte dynamic (*f*) and a slur. The bottom staff of Pno 2 has a bass line with a forte dynamic (*f*) and a slur. The third system (Pno 3) continues the melodic and bass lines. The top staff of Pno 3 has a melodic line with a forte dynamic (*f*) and a slur. The middle staff of Pno 3 has a bass line with a forte dynamic (*f*) and a slur. The bottom staff of Pno 3 has a bass line with a forte dynamic (*f*) and a slur. The score includes various musical notations such as dynamics (*p* for piano, *f* for forte), articulation (accents), and fingering (7, 9, 11).

352

Pno 1

Pno 2

Pno 3

Geometry

11 *p* ³
Ped.

358

Pno 1

11 11 11 15 3 7

p

Ped. _____

Pno 2

11 11 13 13

p *p*

Ped. _____

Pno 3

11 11 11 17

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is written in treble and bass clefs with a key signature of one sharp (F#). The piece begins at measure 361. Pno 1 features a complex texture with multiple voices in the treble clef, including a 15-measure phrase and a 3-measure triplet. Pno 2 has a rhythmic accompaniment with triplets and 13-measure phrases, and a 7-measure phrase in the bass clef. Pno 3 provides harmonic support with 11-measure phrases and a 7-measure phrase. Dynamics include piano (*p*) and fortissimo (*ff*). The score concludes with a *Ped.* (pedal) marking.

The image displays a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is divided into three systems, each with a grand staff (treble and bass clefs).
- **Pno 1:** The first system starts at measure 363. It features a treble staff with a melodic line containing triplets (marked '3') and a 15-measure phrase. The bass staff has a 7-measure phrase. Dynamics include a piano (*p*) marking. A 'Ped.' (pedal) line is shown below the staff.
- **Pno 2:** The second system shows a treble staff with a 15-measure phrase and a 7-measure phrase. The bass staff has a 13-measure phrase and a 3-measure phrase. Dynamics include a piano (*p*) marking. A 'Ped.' line is shown below the staff.
- **Pno 3:** The third system shows a treble staff with a 15-measure phrase and a 13-measure phrase. The bass staff has an 11-measure phrase and another 11-measure phrase. Dynamics include a piano (*p*) marking. A 'Ped.' line is shown below the staff.

Pno 1

365

3

15

3

3

11

Ped.

Pno 2

7

13

13

11

7

15

11

p

Pno 3

11

7

15

11

3

Ped.

367

Pno 1

Pno 2

Pno 3

Red.

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is divided into two systems. The first system starts at measure 367. Pno 1 has a treble clef and a bass clef. Pno 2 has a treble clef and a bass clef. Pno 3 has a treble clef and a bass clef. The score includes various musical notations such as chords, arpeggios, and fingerings. Fingerings are indicated by numbers 7, 15, 13, 3, and 11. There are also some markings like 'Red.' and 'Ped.'.

Pno 1

369

15

3

15

7

11

3

Ped.

Pno 2

15

7

13

13

7

11

Ped.

Pno 3

15

7

11

7

3

Ped.

Pno 1

371 15 3 3

Red.

Pno 2

15 7 13 3 7 13

Red.

Pno 3

15 7 7 11

Pno 1

373

7 15 15 11 3

Pno 2

13 13 11-7

p

Pno 3

13 7 11

Geometry

Piano score for three pianos (Pno 1, Pno 2, Pno 3). The score is divided into two systems, each with a right and left hand part. Pno 1 starts at measure 375. The score includes various musical notations such as treble and bass clefs, time signatures, and dynamic markings like *Ped.* (Pedal). Fingerings and articulations are indicated by numbers (e.g., 15, 7, 3, 13, 11) and brackets. The music features complex textures with overlapping lines and chords.

377

Pno 1

15

19

mf

p

p

p

p

Pno 2

13

p

p

p

p

p

Pno 3

p

p

p

p

p

382

Pno 1

Pno 2

Pno 3

387

Pno 1

Pno 2

Pno 3

The image shows a musical score for three pianos, labeled Pno 1, Pno 2, and Pno 3. The score is written in 7/8 time and consists of three systems of staves. Each system contains five staves: a grand staff (treble and bass clef) and three individual staves. Pno 1 starts at measure 387. The score includes various musical notations such as notes, rests, and fingerings (e.g., 5, 9, 11, 19). Pno 2 has a dynamic marking of *mf* in the first measure of its system. Pno 3 has a dynamic marking of *mf* in the first measure of its system. The score is titled "Geometry" at the bottom.

Geometry

392

The musical score is divided into three systems, each for a different piano (Pno 1, Pno 2, Pno 3). Each system contains five staves: two for the right hand (treble clef) and three for the left hand (bass clef). The score includes various musical notations such as dynamics (p, pp), fingerings (5, 9, 11, 7), and articulation marks. The first system (Pno 1) starts at measure 392 and features a complex texture with overlapping lines and dynamic markings like *p* and *pp*. The second system (Pno 2) continues the piece with similar complexity, including a dynamic marking of *p*. The third system (Pno 3) concludes the section with further intricate notation and dynamics like *p*.

396

Pno 1

Pno 2

March 30 - July 14, 2021
Germantown, NY

Pno 3