

Random Partial (I - I6th harmonic) Version 2.1

Durata approx. 40-42 minutes

Håkon Thelin, 2020

This work explores the sonic differences between harmonic partials (just intonation) on the double bass and the well-tempered piano. The material consists of 64 different partials on the double bass, 16 on each string, which are combined with the piano's unison harmonious tones, sometimes creating pulsating interference tones of various intensity. The partials have been randomly chosen by a computer program until all partials are used.

Random number series:

49, 36, 61, 38, 61, 16, 32, 35, 32, 26, 4, 13, 61, 56, 39, 59, 44, 32, 23, 30, 31, 18, 33, 60, 59, 2, 43, 26, 37, 18, 54, 54, 37, 45, 56, 34, 23, 43, 25, 27, 12, 1, 4, 45, 44, 64, 54, 28, 49, 41, 29, 51, 37, 36, 62, 4, 24, 40, 23, 50, 41, 43, 58, 39, 62, 47, 47, 53, 53, 39, 27, 50, 11, 36, 51, 38, 52, 22, 7, 58, 24, 57, 41, 7, 6, 13, 12, 60, 17, 8, 47, 4, 22, 19, 13, 41, 6, 20, 19, 57, 53, 16, 4, 34, 42, 44, 30, 63, 40, 1, 45, 13, 50, 64, 21, 18, 36, 49, 61, 59, 7, 41, 28, 51, 10, 39, 58, 29, 1, 48, 12, 56, 54, 22, 38, 7, 48, 23, 54, 54, 14, 52, 34, 22, 29, 9, 60, 56, 64, 5, 28, 49, 63, 42, 36, 26, 63, 39, 26, 7, 24, 60, 55, 30, 19, 57, 27, 2, 18, 24, 63, 50, 49, 4, 3, 44, 25, 26, 54, 34, 37, 5, 41, 17, 50, 11, 13, 1, 1, 53, 22, 1, 42, 36, 28, 35, 51, 5, 1, 56, 42, 31, 47, 1, 35, 55, 34, 5, 44, 47, 36, 3, 20, 22, 45, 30, 9, 20, 24, 18, 17, 49, 41, 32, 27, 3, 23, 22, 21, 64, 8, 31, 53, 48, 42, 45, 6, 16, 62, 18, 48, 4, 2, 9, 9, 48, 36, 32, 33, 34, 39, 58, 2, 11, 46, 19, 25, 13, 58, 20, 5, 5, 59, 34, 43, 61, 32, 34, 29, 24, 20, 52, 59, 28, 9, 15.

String 1:

Partials 1-16 correspond with numbers 1-16

String 2:

Partials 1-16 correspond with numbers 17-32

String 3:

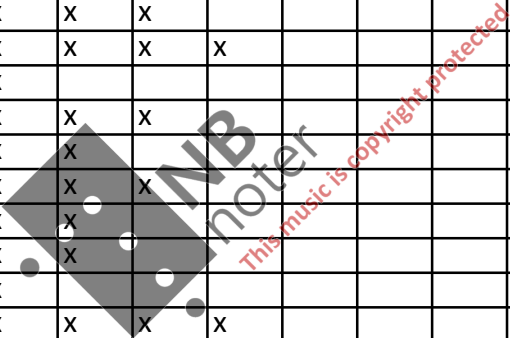
Partials 1-16 correspond with numbers 33-48

String 4:

Partials 1-16 correspond with numbers 49-64

Number series: Appearances in piece:

1	x	x	x	x	x	x	x	x			
2	x	x	x	x							
3	x	x	x								
4	x	x	x	x	x	x	x				
5	x	x	x	x	x	x					
6	x	x	x								
7	x	x	x	x	x						
8	x	x									
9	x	x	x	x	x						
10	x										
11	x	x	x								
12	x	x	x								
13	x	x	x	x	x	x					
14	x										
15	x										
16	x	x	x								
17	x	x	x								
18	x	x	x	x	x	x					
19	x	x	x	x							
20	x	x	x	x	x						
21	x	x									
22	x	x	x	x	x	x	x				
23	x	x	x	x	x						
24	x	x	x	x	x	x					
25	x	x	x								
26	x	x	x	x	x						
27	x	x	x	x	x						
28	x	x	x	x	x						
29	x	x	x	x							
30	x	x	x	x							
31	x	x	x								
32	x	x	x	x	x	x					
33	x	x									
34	x	x	x	x	x	x	x	x			
35	x	x	x								
36	x	x	x	x	x	x	x	x			
37	x	x	x	x							
38	x	x	x								
39	x	x	x	x	x	x					
40	x	x									
41	x	x	x	x	x	x	x				
42	x	x	x	x	x						
43	x	x	x	x							
44	x	x	x	x	x						
45	x	x	x	x	x						
46	x										
47	x	x	x	x	x						
48	x	x	x	x	x						
49	x	x	x	x	x	x					
50	x	x	x	x	x						
51	x	x	x	x							



52	x	x	x							
53	x	x	x	x	x					
54	x	x	x	x	x	x	x			
55	x	x								
56	x	x	x	x	x					
57	x	x	x							
58	x	x	x	x	x					
59	x	x	x	x	x					
60	x	x	x	x						
61	x	x	x	x	x					
62	x	x	x							
63	x	x	x	x						
64	x	x	x	x						



Random Partial (I-16th harmonic)

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$\text{♩} = 54$

Cb.
Tuning:
G-D-A-E

Pno.

Measures 1-9:
Cb. notes: C_2 , C_3 , C_4 , C_5 , C_6 , C_7 , C_8 , C_9 , C_{10} , C_{11} , C_{12} , C_{13} , C_{14} , C_{15} , C_{16}
Chord diagrams: IV/1, III/4, IV/13, III/6, IV/13, I/16, II/16, III/3, II/16
Pno. notes: C_2 , C_3 , C_4 , C_5 , C_6 , C_7 , C_8 , C_9 , C_{10} , C_{11} , C_{12} , C_{13} , C_{14} , C_{15} , C_{16}

Measures 10-19:
Cb. notes: C_2 , C_3 , C_4 , C_5 , C_6 , C_7 , C_8 , C_9 , C_{10} , C_{11} , C_{12} , C_{13} , C_{14} , C_{15} , C_{16}
Chord diagrams: II/10, I/4, I/13, IV/13, IV/8, III/7, IV/11, III/12, II/16, II/7
Pno. notes: C_2 , C_3 , C_4 , C_5 , C_6 , C_7 , C_8 , C_9 , C_{10} , C_{11} , C_{12} , C_{13} , C_{14} , C_{15} , C_{16}

Measures 20-29:
Cb. notes: C_2 , C_3 , C_4 , C_5 , C_6 , C_7 , C_8 , C_9 , C_{10} , C_{11} , C_{12} , C_{13} , C_{14} , C_{15} , C_{16}
Chord diagrams: II/14, II/15, II/2, III/1, IV/12, IV/11, I/2, III/11, II/10, III/5
Pno. notes: C_2 , C_3 , C_4 , C_5 , C_6 , C_7 , C_8 , C_9 , C_{10} , C_{11} , C_{12} , C_{13} , C_{14} , C_{15} , C_{16}

30

+2 +2 -14 +41 -31 -49 +4

II/2 IV/6 IV/6 III/5 III/13 IV/8 III/2 II/7 III/11 II/9

40

-49 +2 +41 +2 +2 +2

II/11 I/12 I/1 I/4 III/13 III/12 IV/16 IV/6 II/12 IV/1

50

+4 +41 -14 -31 -12 -31

III/9 II/13 IV/3 III/5 III/4 IV/14 I/4 II/8 III/8 II/7

60

+4 -49 -14 -31 -12 -12 -14 -14

IV/2 III/9 III/11 IV/10 III/7 IV/14 III/15 III/15 IV/5 IV/5

70

-31, -49, +2, +2, +2, -31, 3

III/7 II/11 IV/2 I/11 III/4 IV/3 III/6 IV/4 II/6 I/7

80

-14, +4, +4, -31, +2, +41, +2, +2

IV/10 II/8 IV/9 III/9 I/7 I/6 I/13 I/12 IV/12 II/1

90

+2, -12, +2, +2, +41, +4, +2, +2

I/8 III/15 I/4 II/6 II/3 I/13 III/9 I/6 II/4 II/3

100

+4, -14, -14, +2, -31, -12, +2

IV/9 IV/5 I/16 I/4 III/2 III/10 III/12 II/14 IV/15 III/8

110

+41

+41

+41

-14

+41

I/1 III/13 I/13 IV/2 IV/16 II/5 II/2 III/4 IV/1 IV/13

120

-49

-31

+4

+2

-14

-31

-14

+41

IV/11 I/7 III/9 II/12 IV/3 I/10 III/7 IV/10 II/13 I/1

130

+2

+2

+2

-31

-31

+2

III/16 I/12 IV/8 IV/6 II/6 III/6 I/7 III/16 II/7 IV/6

140

+2

-31

+2

+41

+4

+2

IV/6 I/14 IV/4 III/2 II/6 II/13 I/9 IV/12 IV/8 IV/16

150

-14 +2 -12 -14 -14 -12 -31 -14 5

I/5 II/12 IV/1 IV/15 III/10 III/4 II/10 IV/15 III/7 II/10

160

-31 +2 -31 +2 +4 -49

I/7 II/8 IV/12 IV/7 II/14 II/3 IV/9 II/11 I/2 II/2

170

-12 +2 +4 -14 +2

II/8 IV/15 IV/2 IV/1 I/4 I/3 III/12 II/9 II/10 IV/6

180

-14 -14 -14 -49 +41

III/2 III/5 I/5 I/5 II/1 IV/2 I/11 I/13 I/1 I/1

6

190

-14 +2 -14 +2 +2 -14

IV/5 II/6 I/1 III/10 III/4 II/12 III/3 IV/3 I/5 I/1

200

-14 -12 +2 -31 -14 +2

IV/8 III/10 II/15 III/15 I/1 III/3 IV/7 III/2 I/5 III/12

210

-12 +2 +41 -31 +4

III/15 III/4 I/3 II/4 II/6 III/13 II/14 I/9 II/4 II/8

220

+4 -49 +2 -31 +2 -14

II/2 II/1 IV/1 III/9 II/16 II/11 I/3 II/7 II/6 II/5

230

IV/16 I/8 II/15 IV/5 III/16 III/10 III/13 I/6 I/16 IV/14

-12 -14 +41 +2 -31 7

240

II/2 III/16 I/4 I/2 I/9 I/9 III/16 III/4 II/16 III/1

+4 +4

250

III/2 III/7 IV/10 I/2 I/11 III/14 II/3 II/9 I/13 IV/10

-31 -14 -49 -31 +2 +4 +41 -14

260

II/4 I/5 I/5 IV/11 III/2 III/11 IV/13 II/16 III/2

-14 -14 -49 -49 +41

8

269

+41

-49

+2

+4

-12

II/13

II/8

II/4

IV/4

IV/11

II/12

I/9

I/15

Detailed description: This is a musical score for guitar, consisting of two systems of staves. The top system has a single treble clef staff with a key signature of one flat (Bb). Above the staff are eight chord diagrams, each with a number above it: +41, , (no number), , (no number), , (no number), -49, +2, +4, and -12. Below the staff are eight chord names: II/13, II/8, II/4, IV/4, IV/11, II/12, I/9, and I/15. The bottom system has a grand staff with treble and bass clefs. The treble staff contains notes for the chords, and the bass staff contains whole rests for all chords.

