Quantum Dances (2010)

for clarinet, violin, and piano

Robert Carl

Written for and dedicated to the Anatolian Trio:

Erberk Eryilmaz, piano
Anna Griffis, violin
Dan Liptak, clarinet in Bb

Duration: c.13.5'

Notation: Trills are always a half step above the indicated note

The symbol indicates that the player should move from a normal vibrato to one that is slow and wide at the peak of the line, and returns to normal at the end of the descent (unless senza vibrato is indicated)

Note:

Quantum Dances is a fanciful representation of the behavior of subatomic particles. I certainly do not pretend to understand quantum mechanics; I just enjoy reading books about contemporary physics written for laypeople. Whenever I stumble upon a concept or behavior that intrigues or amuses me, I start to think about musical analogues. What engages me is the fact that these natural phenomena may actually suggest musical processes I might never have otherwise imagined.

The work is a suite of eleven short dances. The title of each describes the scientific source. I t may be performed in two different manners:

1) The work is played as written by the three players, with no commentary.

2) A narrator announces the title of each dance before it is played, a bit like Carnival of the Animals.

As I've finished the piece, I realize there are two composers haunting it. Bartok is one, particularly evident to me as I've been working carefully through the Mikrokosmos for the past three years (and am almost done!). The other is Tom Johnson, whom I finally met September last, and whose "algorithmic minimalism" I found exciting in both its fantasy and rigor.

--Robert Carl

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1. The trace of the Big Bang is low-level microwave radiation

(♩ = 76)

Cl. in B♭

Violin

Piano

mf *mp*

(Clarinet and Violin not too loud, but emerging from piano chord with nervous energy, and then prgressively dissipating)

(con sord.)

f

fff

Ped. *(sempre laissser vibrer)*

Cl.

Vln.

Pn.

p *mp* *p*

mf *mp*

ff *f*

Cl.

Vln.

Pn.

pp p pp ppp

p pp ppp

8va

mf p pp

8vb

mp

4

2. Electrons not only have independent orbits, but they have two types of spin.

(♩= 148)

Cl.

Vln.

Pn.

pppp mp cresc. mf mp

(senza sord.) 3 (3 simile)

pppp p cresc.

(separate bows throughout)

ppp p ppp

7

(U.C.)

(catch resonance)

Cl.

Vln.

Pn.

cresc.

mf

mp

mp

(secco!)

p

8va

mp

sf

p

10

Cl.

Vln.

Pn.

cresc.

mf

mp

cresc.

8va

mp

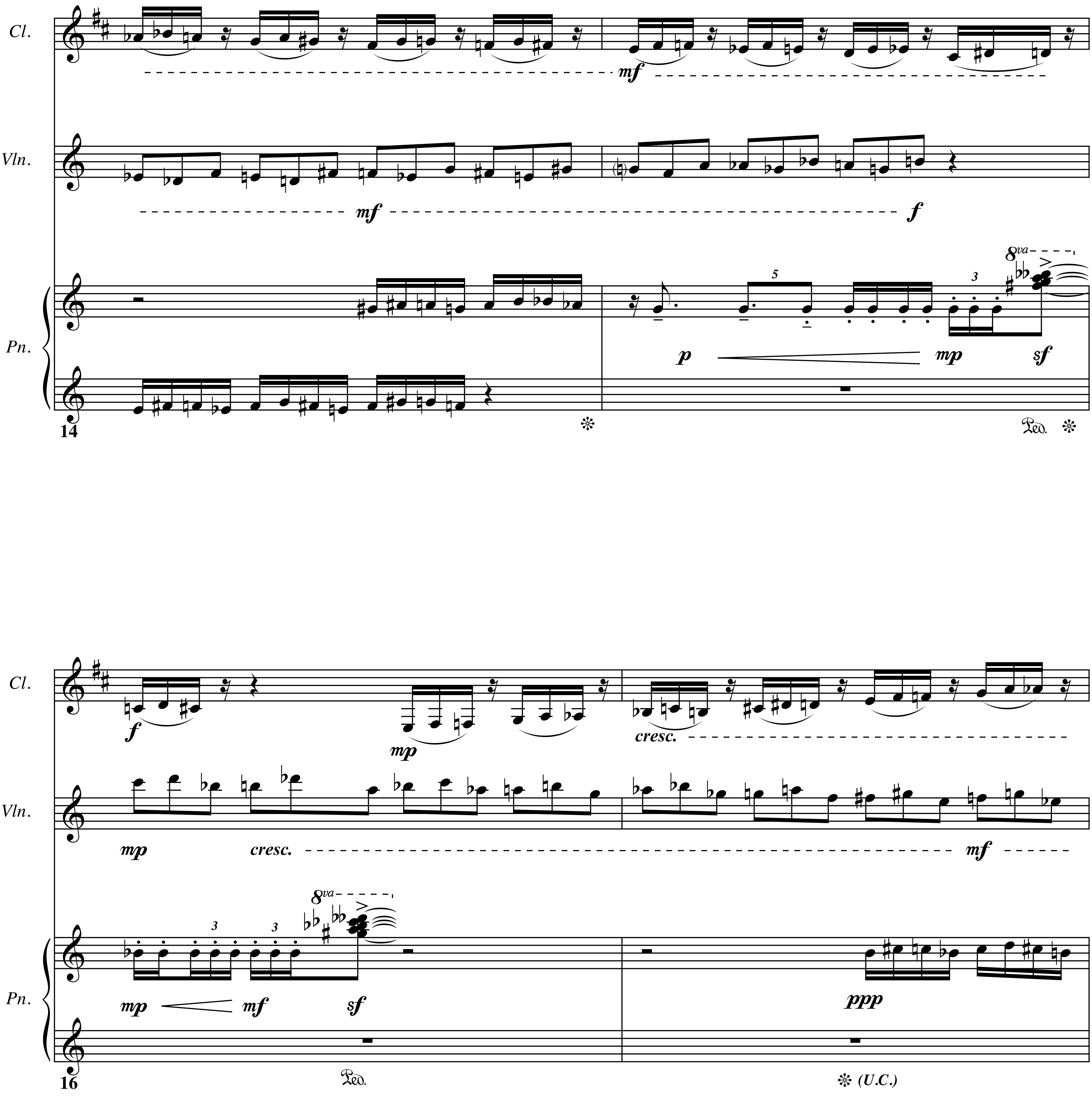
sf

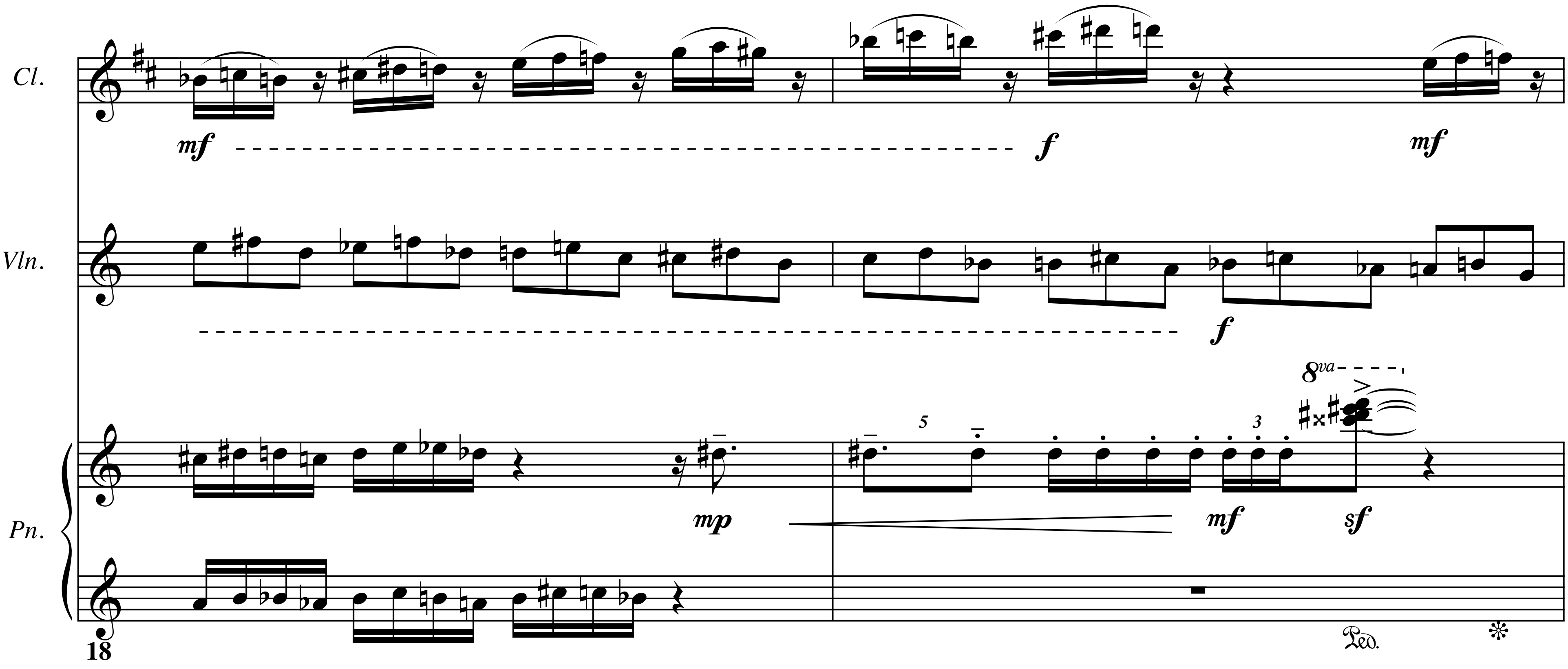
ppp

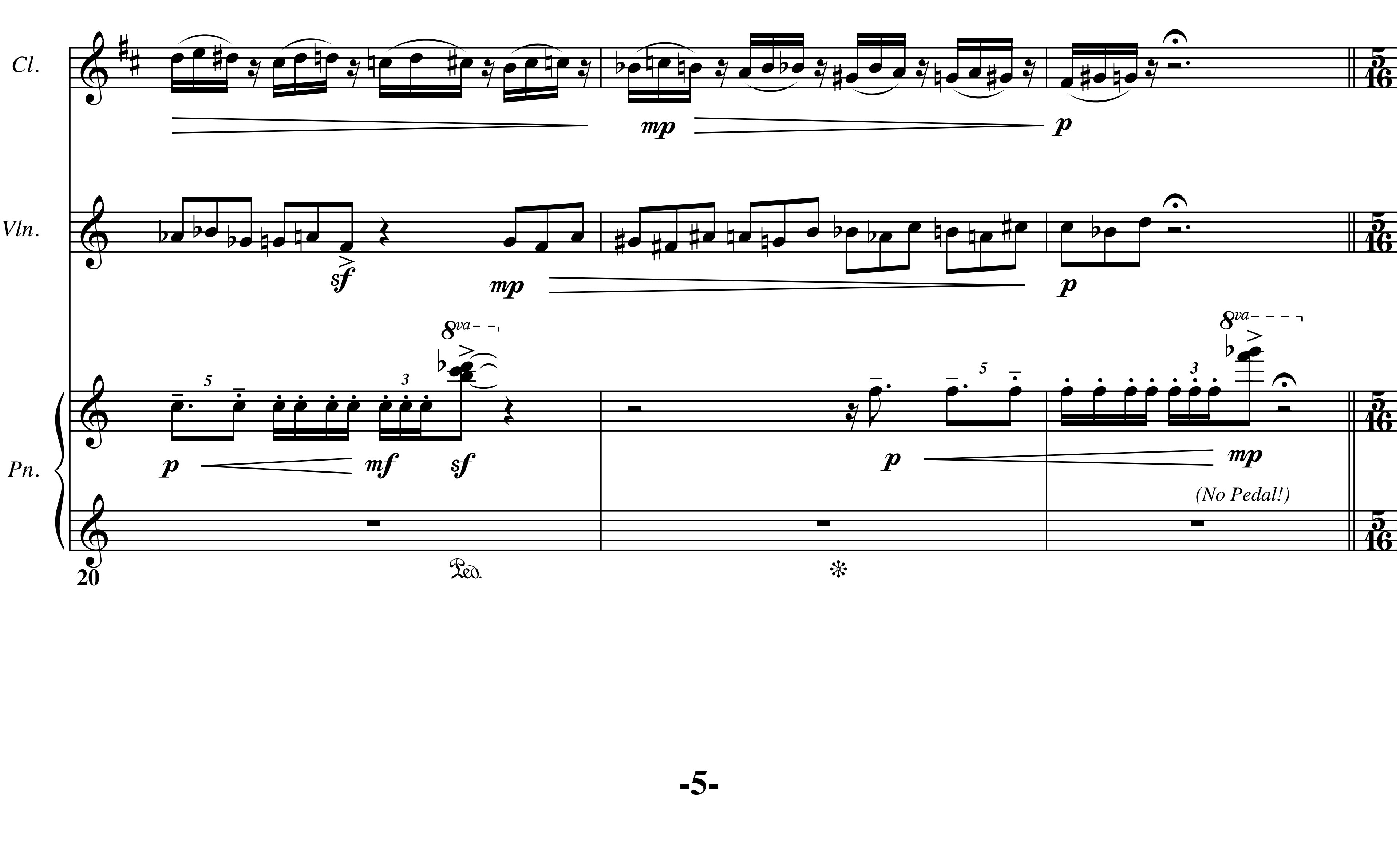
Ped.

(U.C.)

12


Cl.
Vln.
Pn.
mf
mf
f
8va
5
3
p
mp
sf
14
Ped.
Cl.
f
mp
cresc.
Vln.
mp
cresc.
mf
8va
3
3
Pn.
mp
mf
sf
ppp
16
Ped.
(U.C.)


Cl.
Vln.
Pn.
mf
f
mf
f
8va
mp
mf
sf
Ped.
18


Cl.
Vln.
Pn.
mp
p
sf
mp
p
8va
p
mf
sf
p
mp
(No Pedal!)
Ped.
20
5
16

(♩♪=72) ***3. Photons and their antiparicles have no charge, and hence are the same.***

Cl.

Vln.

(con sord; sempre pizz.)

Pn.

23

(U.C. sempre)

Cl.

Vln.

Pn.

29

Cl.

Vln.

Pn.

33

Cl.

Vln.

(senza sord.)

Pn.

39

Cl.

Vln.

Pn.

43

mp

mp

mp

Cl.

Vln.

Pn.

45

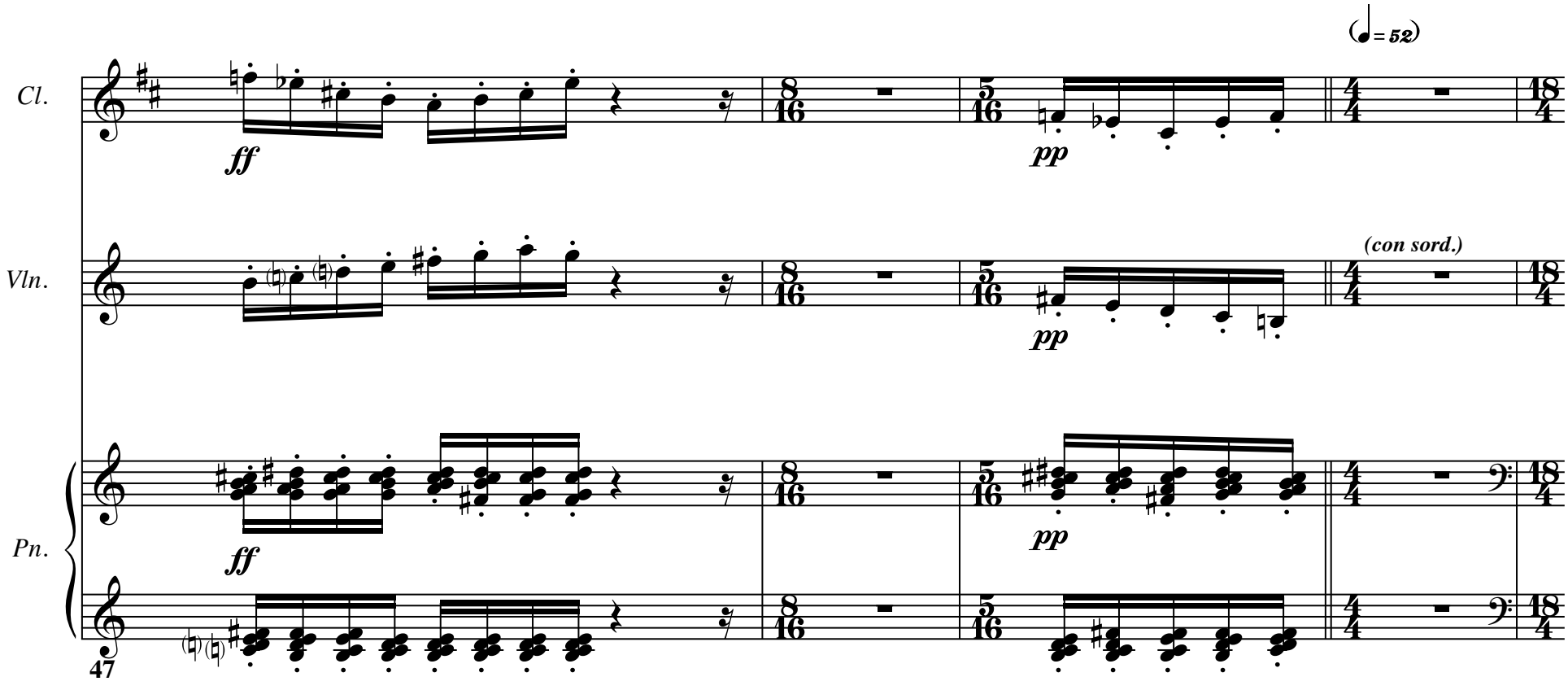
mf

mf

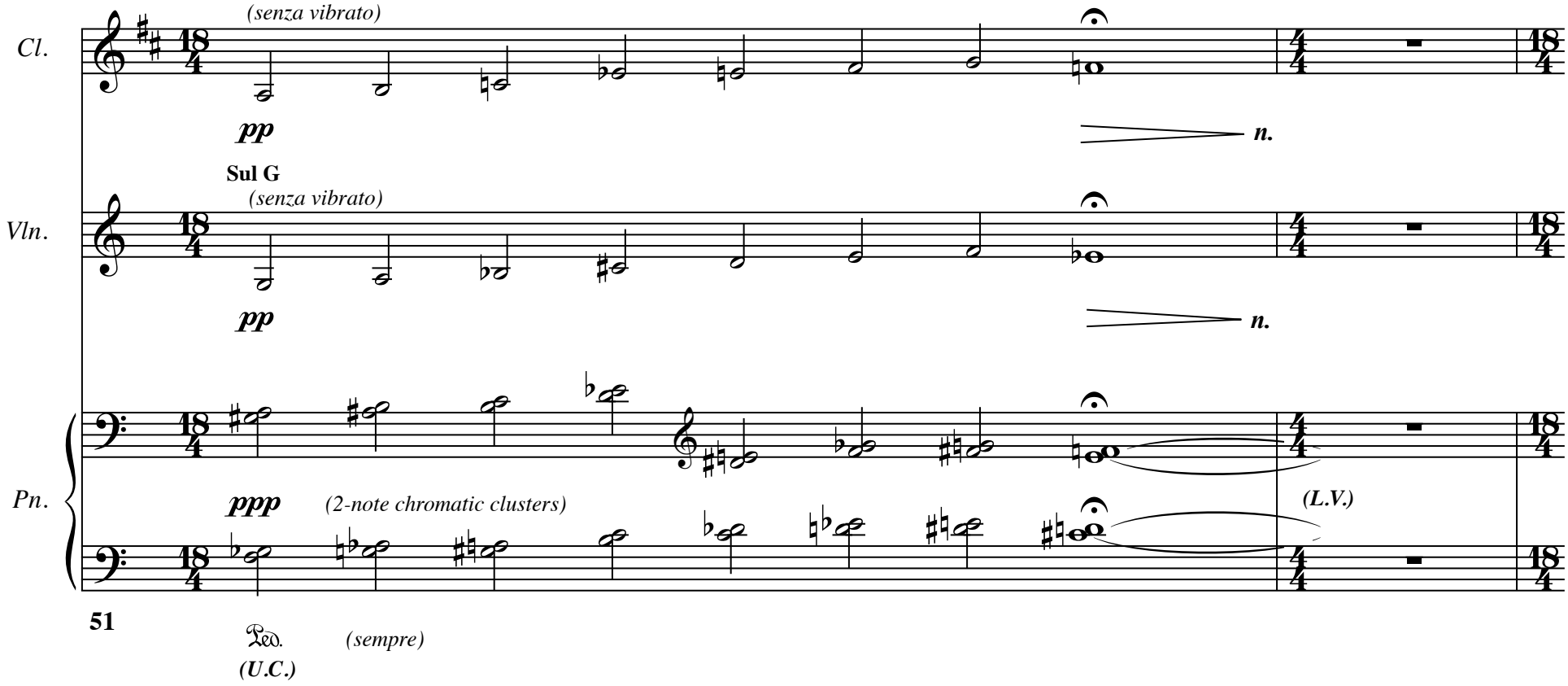
mf

f

f



4. Cold dark matter, denser and heavier than visible matter.



Cl.

Vln.

Pn.

Sul D

p

n.

(3-note chromatic clusters)

53

Cl.

Vln.

Pn.

Sul G

Sul D

mp

mf

mp

n.

(4-note chromatic clusters)

55

Cl.

Vln.

Pn.

mp decresc. p>n.

Sul G

mp decresc. p>n.

mp

(5-note chromatic clusters)

57

Cl.

Vln.

Pn.

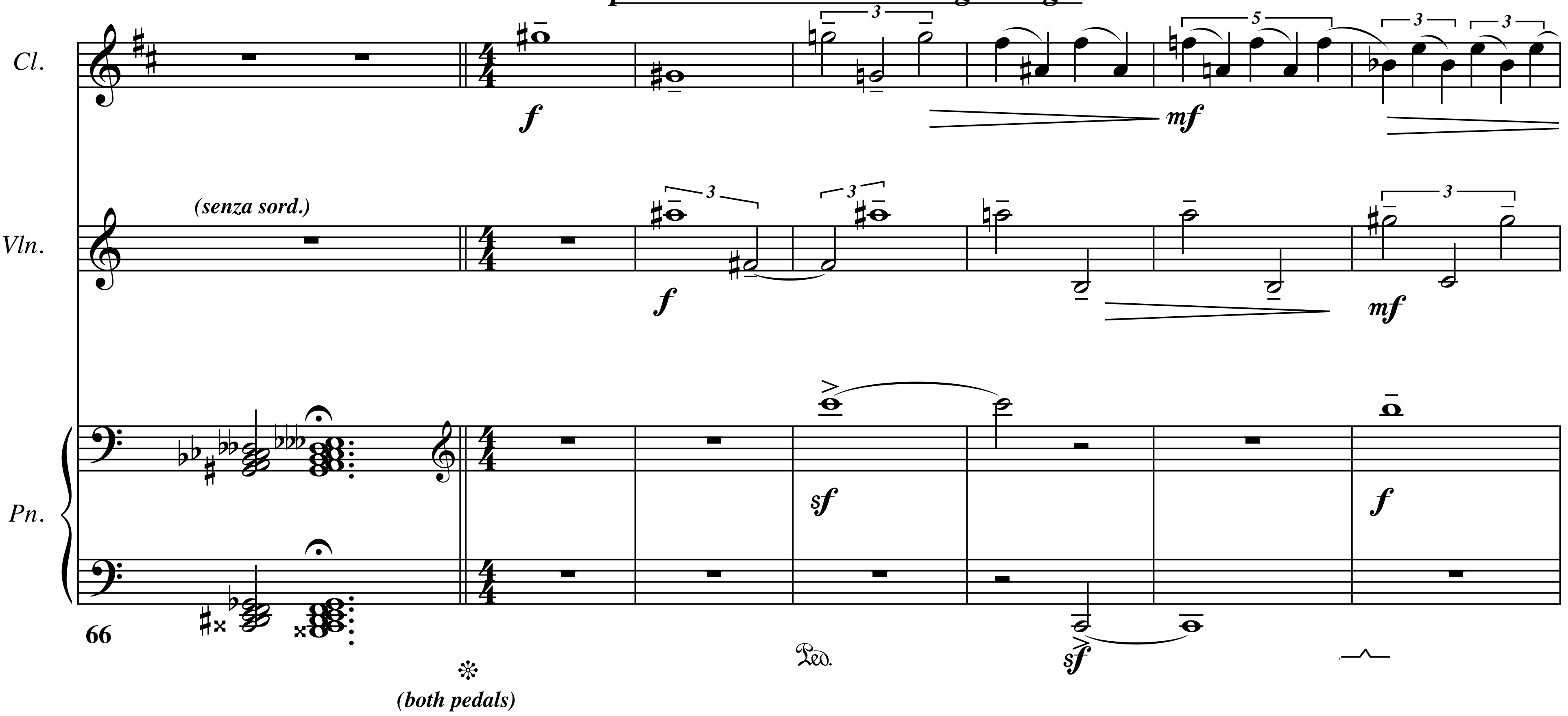
p n.

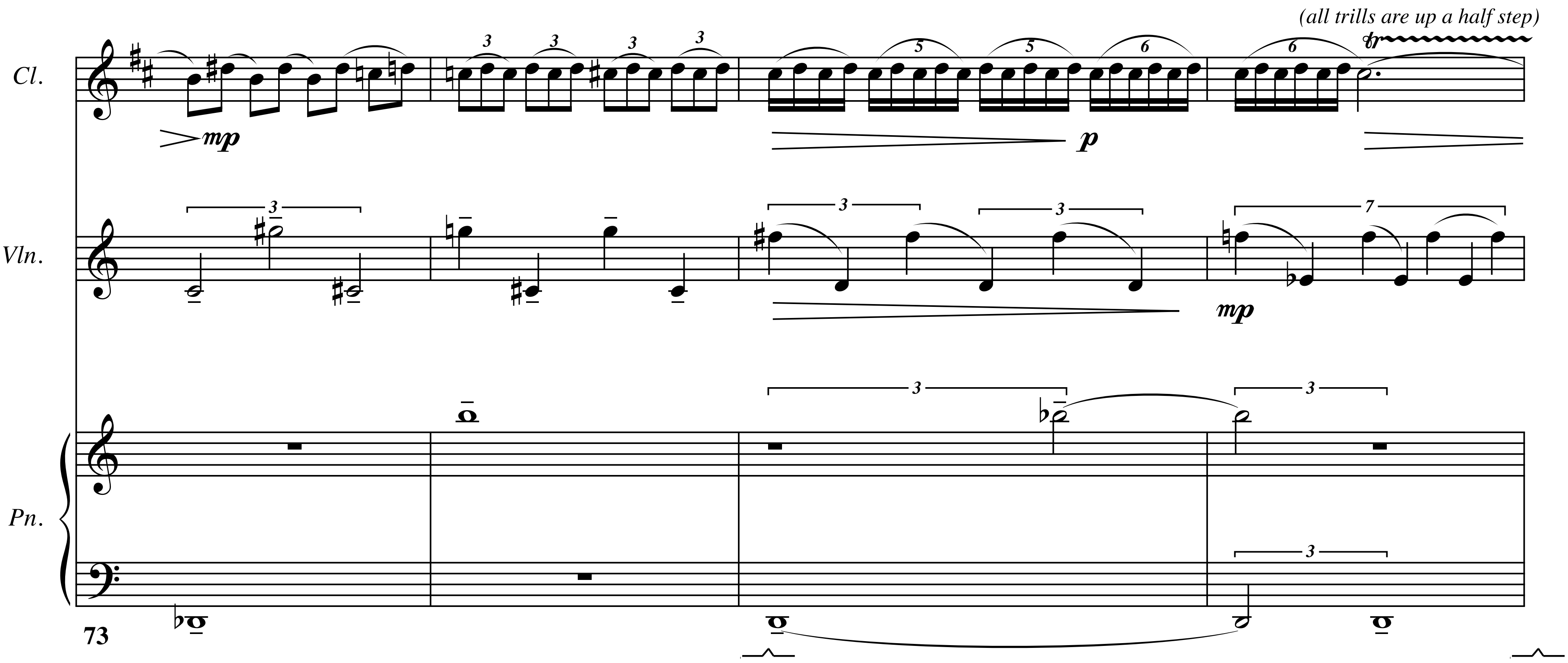
p n.

60

(♩ = 108)

5. As one gets to ever smaller distances, particles become vibrating strings.





Cl.

Vln.

Pn.

77

pp

pp

mp

p

mf

Cl.

Vln.

Pn.

81

pp

pppp

(all trills are up a half step)

pp

pppp

mp

Cl.

Vln.

Pn.

85

p

ppp

tr

pp

5 5 5 5

tr

Cl.

ppp *pp* *ppp*

Vln.

mp *p* > *ppp* *ppp*

tr

Pn.

6 7

tr

tr

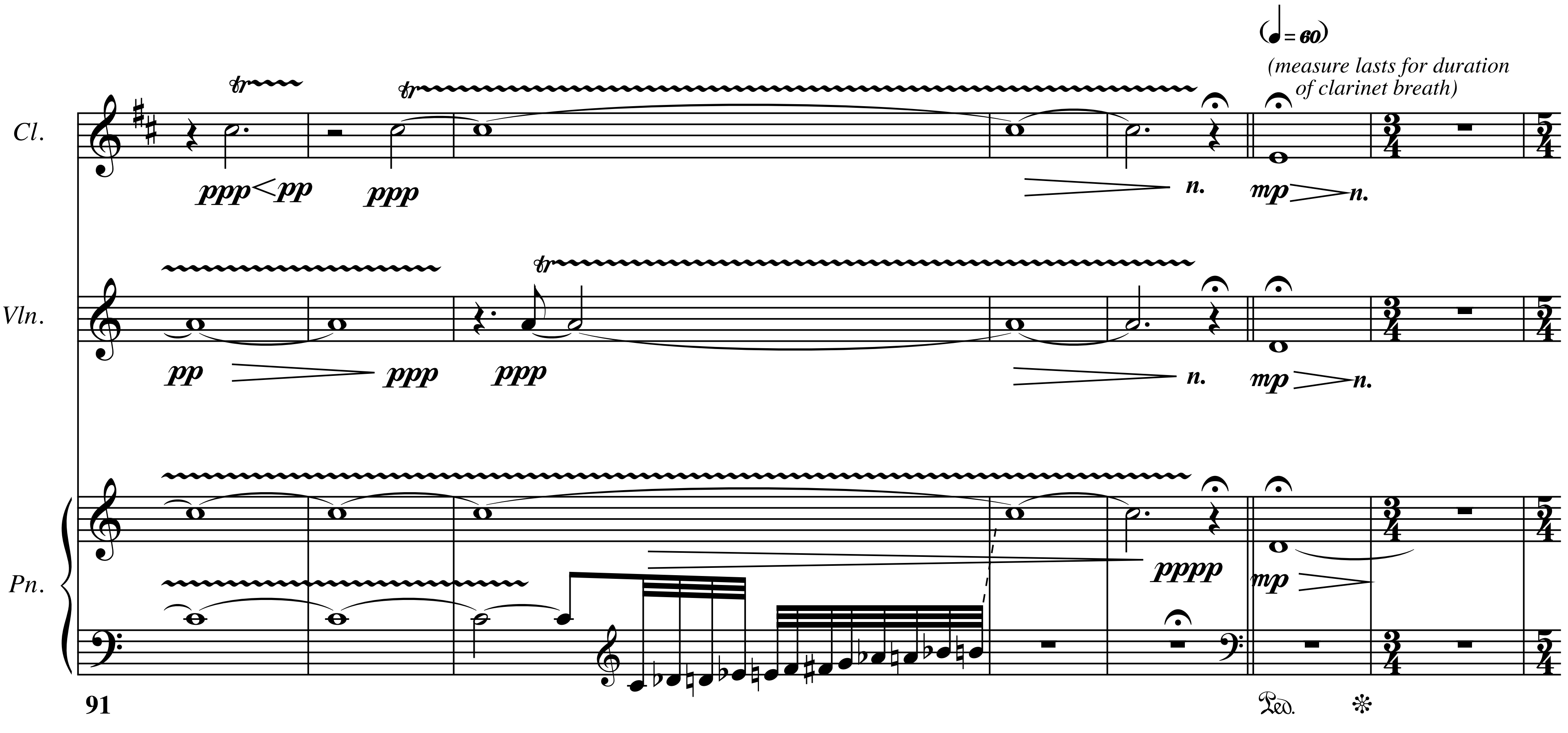
ppp

tr

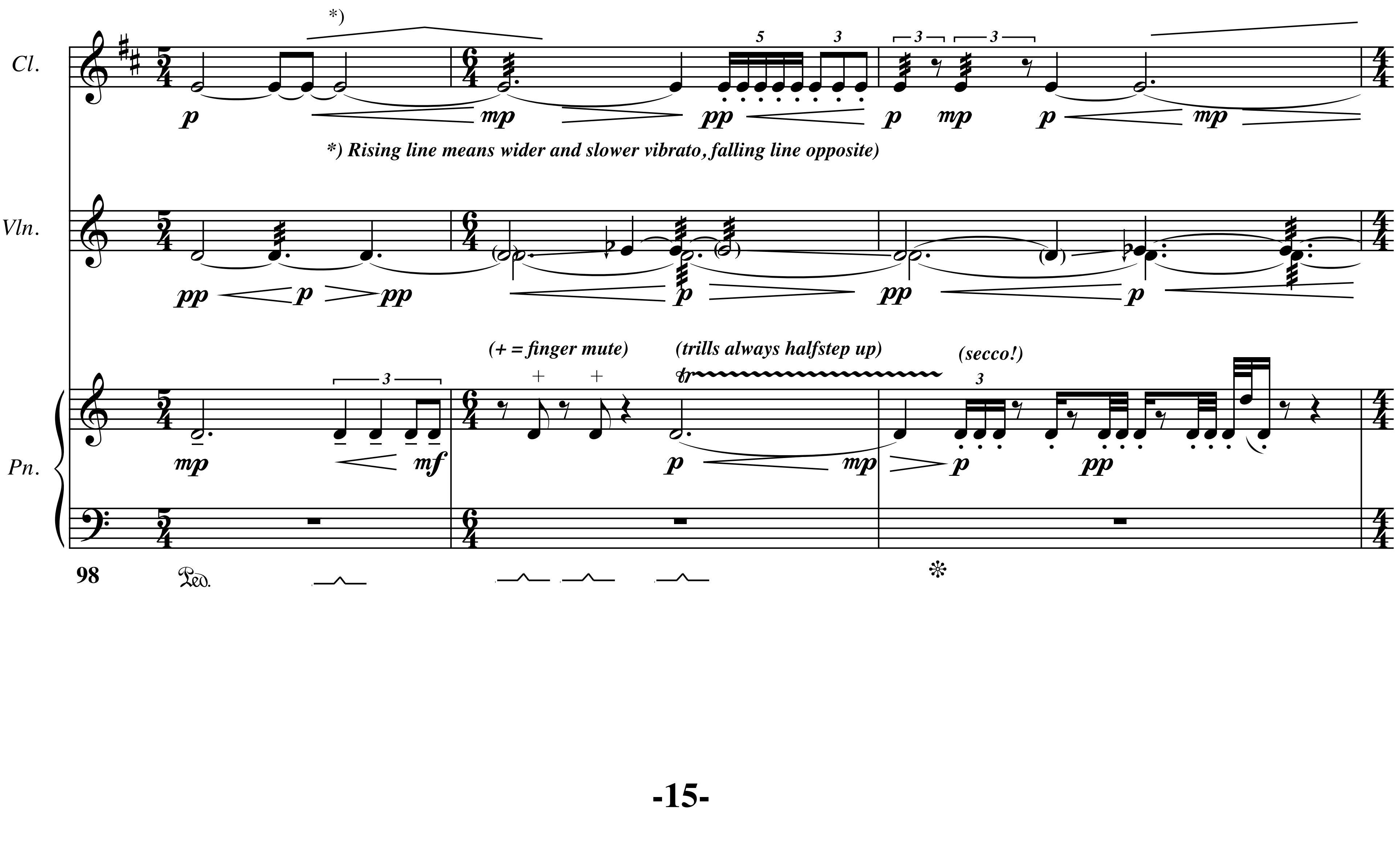
87

pp

❊ *(No pedal))*



6. The Universe exists in many more dimensions than the four we usually experience.



Cl.

Vln.

Pn.

(rough!)

101

Ped.

Cl.

Vln.

Pn.

(senza vibr.)

104

Ped.

Cl.

Vln.

Pn.

107

(A)

(D)

(rough!)

(senza vibr.)

110

Ped.

Cl.

Vln.

Pn.

114

Ped.

Cl.

Vln.

Pn.

117

(rough!)

Ped.

Cl.

Vln.

Pn.

(♩= 72)

f mf mp p

(senza vibr.)

sf mf p

mp mf p

(Sharp!)

sf (sempre)

120

(molto leggiero!)

(♩= 88)

(pizz.)

p mp

(3 simile)

(3 simile)

124

(♩= 104)

Cl.

Vln.

Pn.

mf

(arco)

mf

128

(♩= 120)

f

(6 simile)

(almost a glissando!)

6

(6 simile)

f

3

3

130

Cl.

Vln.

Pn.

132

(♩= 52)

ff

ff

(sul tasto, senza vibr.)

pp

3

3

3

3

(sotto voce, senza vibr.)

(sempre sotto voce, senza vibr.)

(ord.)

(con sord.)

ppp

p

pp

ppp

pp

mp

mf

f

mp

n.

ppp

ff

(L.V.)

ff

137

8vb

8vb

Ped.

Cl.

Vln.

Pn.

(ord.) (ord. vibr.) 3 mf f mp n. ppp pp ppp n.

(senza sord.) (sul tasto, senza vibr.) (ord.) (ord. vibr.) pp n. pp mp mf mp n.

ff (L.V.) pp (L.V.) 8vb (U.C.) (no sustain pedal change!)

146

(♩= 96) ***9. A particle and anti-particle collide and disappear.***

Cl.

Vln.

Pn.

mp mf mp

mp mf

sf mp

156

Cl.

Vln.

Pn.

mf mf < f mf

mp mf < f

mf < sf

162

Poco Rit.

f ff sff pp

mf f ff sff pp

mf f ff sff pp

pp

167

Cl.

Vln.

Pn.

(♩= 76)

p

(pizz.)

p

p

171

cresc.

cresc.

cresc.

mp

mp

mp

mf

mf

mf

(arco)

174

Cl.

Vln.

Pn.

176

(♩= 60) ***10. The Color force between quarks actually increases with distance.***

Cl.

Vln.

Pn.

(D string) (always continuous gliss for duration in parentheses)

cresc.

178

(U.C.; no sustain pedal)

Cl.

Vln.

Pn.

pp n. ppp pp p pp p>n. ppp<pp p pp

(E string)

mp cresc. mf

p mp mf mp

185

Cl.

Vln.

Pn.

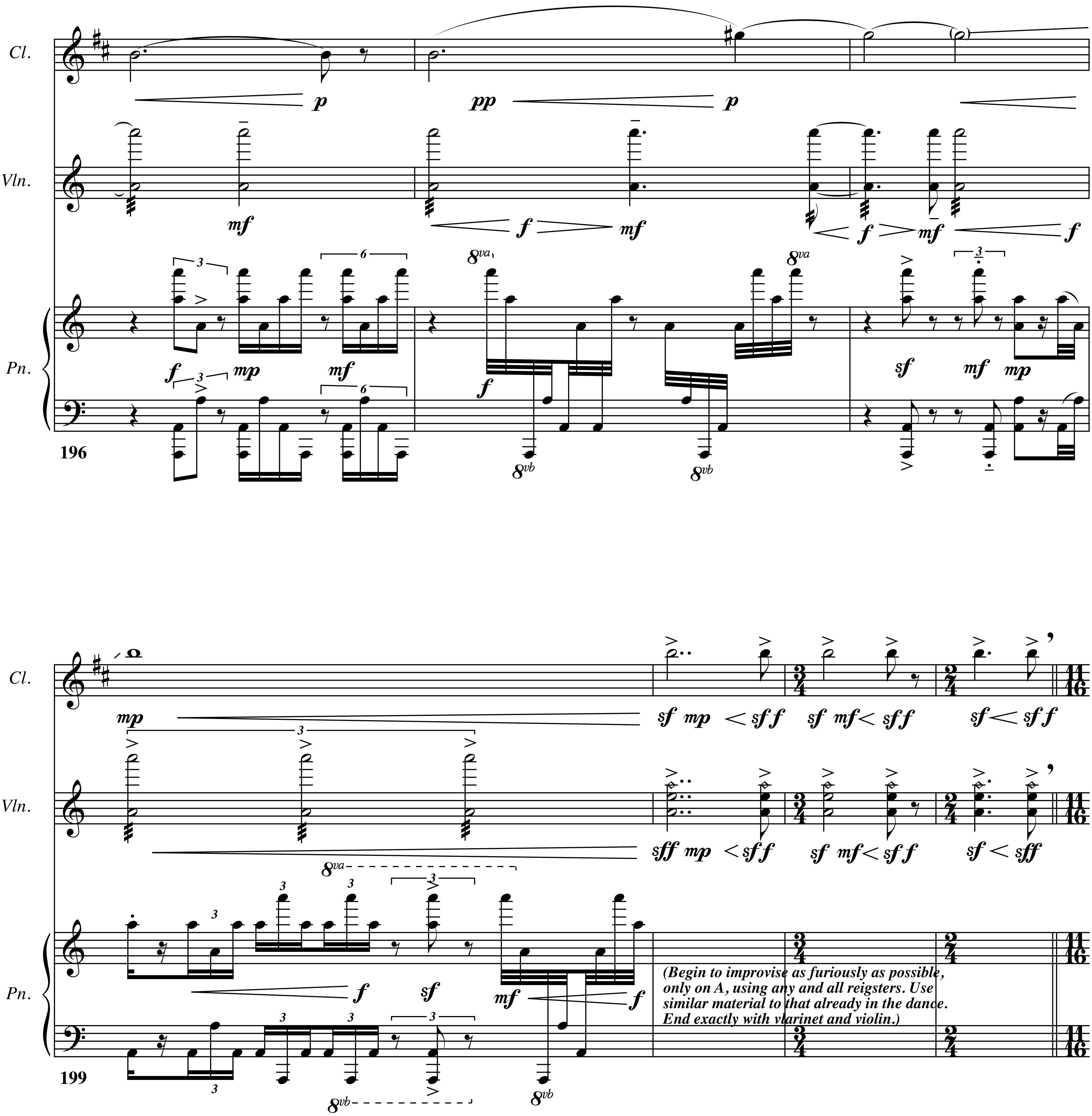
p mp n. ppp pp

f

mf mp f sf f p f sf

193

(end U. C.; NO other pedal!)


Cl.
Vln.
Pn.
196
199
(Begin to improvise as furiously as possible, only on A, using any and all reigsters. Use similar material to that already in the dance. End exactly with clarinet and violin.)

11. A charmed quark is heavier than a proton.
(which is made of three quarks!)

♪. = 152

Cl.

Vln.

Pn.

203

Cl.

Vln.

Pn.

208

Cl.

Vln.

Pn.

212

mp mf

mf> mp mf

mf mf

Cl.

Vln.

Pn.

216

mp mf f mp

mp mf

f mf sf mf sf

Cl.

Vln.

Pn.

(simile)

f

cresc.

(simile)

f

cresc.

(simile)

219

(♩= 114)

Cl.

sf

Vln.

sf

8va

Pn.

sf

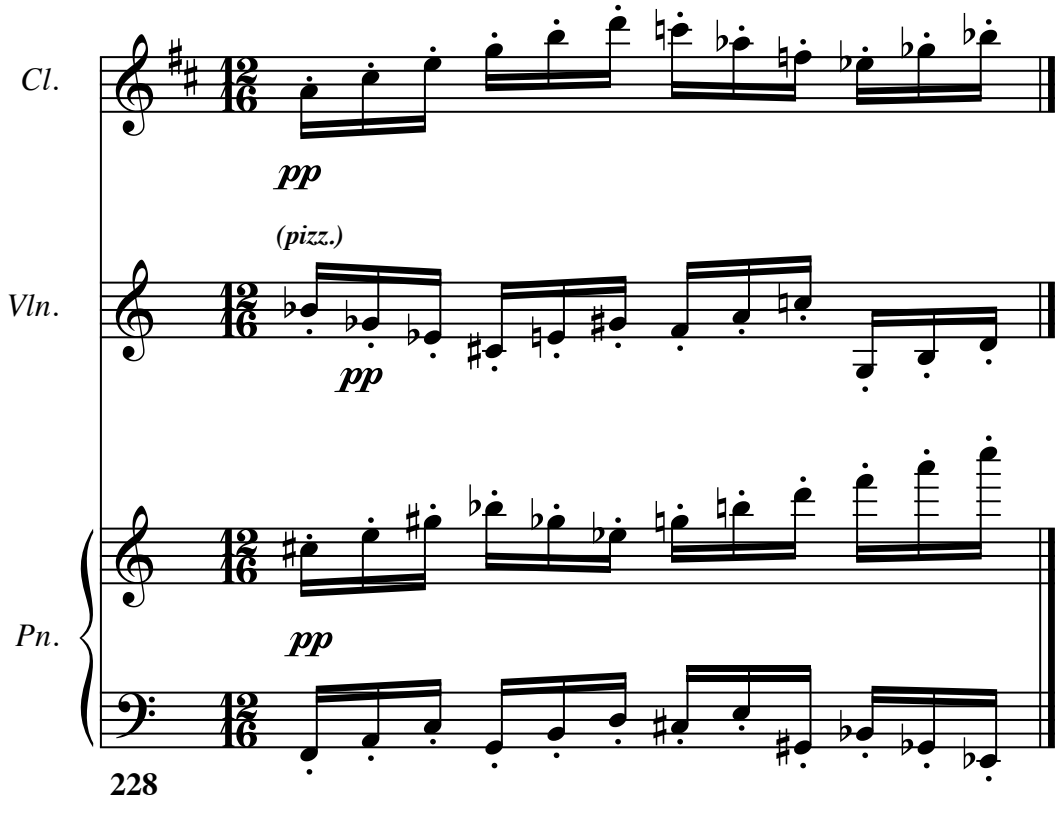
fff (L.V.)

sf

222

Ped.

*



(Hartford, 1/3-2/25/10)