

**ATOMIC**

***VARIATIONS***

(FOR SAXOPHONE, AMPLIFIED GUITAR AND EFFECTS,  
PIANO, PERCUSSION)

**ETHAN WICKMAN**



## NOTE

Set in five continuous variation movements, *Atomic Variations* explores some of the basic science, romance, and popular mythology of the atomic bomb. Sometimes chillingly calculated, sometimes warm and humanized, the work makes an epic love story of the physics and forces that comprise the bomb. In its occasional lyricism, the work is never far from a sense of foreboding inevitability—the consequences of which, though the result of natural, even predictable processes, possess the most unthinkable known to humanity.

The first variation, “Inertia,” is a slowly accelerating crescendo of activity wrought by metric modulations that conclude in a passage of blinding speed.

The second variation, “Pas de Deux,” takes its inspiration from ballet, as two leading characters create dual centers of gravity around which their respective partners can act and react. A romantic view of the ‘dance’ that exists between subatomic particles is the order of the movement.

“Separation Anxiety,” the third variation, progresses toward an extended passage of increasingly tense contrary motion—highlighting the forces that sever ties and relationships. Splitting the atom is cast in a backdrop of anguish, betrayal, and nostalgia.

“Murder by Numbers” a fast, angular, percussion driven movement follows the foregoing ‘break-up.’ A series of pre-compositionally planned prime number proportions (derived from a series of prime numbers that add up to yield the atomic weight of uranium) determine which instruments play, and for how long. In this variation, murder is an act of precision, not the chaos of blunt force.

The final variation reconciles the disparity of the previous movements, while finally giving full expression to the famous Puccini aria “Nessun Dorma” heard in brief phrases throughout the entire work. Aptly entitled “None Shall Sleep,” (the English translation of the Italian aria’s title) this variation contrasts one of the opera world’s most famous (and most parodied) melodies against the swirling particles from prior movements. At the culminating moment however, the powers-that-be subvert expectation, as the infernal equation disrupts the reverie with forces of inevitability too great to withstand. The laws of nature send the work plunging into a night where, indeed, ‘none shall sleep.’

*Atomic Variations* is, gratefully,  
Commissioned by the Barlow Endowment for Music Composition  
at Brigham Young University

# INSTRUMENTATION\*

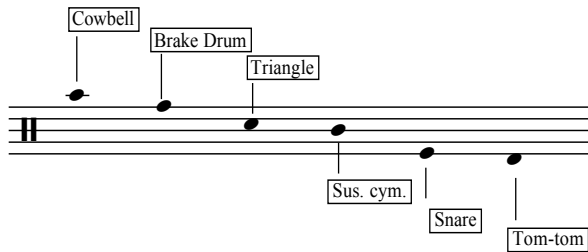
**SAXOPHONES** (TENOR, SOPRANO IN B-FLAT, BARITONE)

**GUITAR** (DIGITAL DELAY W/ VARIABLE SPEED; EBOW; VOLUME PEDAL)—SEE "PERFORMANCE NOTES" BELOW

**PIANO**

**PERCUSSION** (MEDIUM SUSPENDED CYMBAL, BRAKE DRUM, COWBELL, TRIANGLE, SNARE, LARGE TOM-TOM, GLOCKENSPIEL, DOUBLE BASS BOW)

**PERCUSSION KEY:**



## PERFORMANCE NOTES:

WHILE NO PREFERENCE AS TO THE TYPE OF GUITAR REQUIRED FOR THE PIECE (AMPLIFIED ACOUSTIC OR ELECTRIC) IS INDICATED, THE CHOICE OF GUITAR TYPE WILL INFLUENCE THE TIMBRE WHEN PLAYING WITH THE EBOW. **IT SHOULD BE NOTED THAT FOR THE EBOW TO WORK EFFECTIVELY, THE GUITAR MUST BE AMPLIFIED BY A PICK-UP, AND NOT A MICROPHONE.** ALSO, PASSAGES MARKED "NIENTE" SHOULD BE UNDERSTOOD AS "PPP" IF PLAYED WITH AN AMPLIFIED ACOUSTIC GUITAR.

INDICATIONS ARE GIVEN THROUGHOUT THE SCORE AS TO THE PRESCRIBED DELAY TIME IN MILLISECONDS (MS). ALL MILLISECOND INSTRUCTIONS, SAVE THOSE AT 1000 OR 500, SHOULD BE THE VALUE OF THE SIXTEENTH NOTE OF THE GIVEN TEMPO. THEREFORE, SHOULD SOME TEMPI BE TOO FAST IN THE FIRST VARIATION, SIMPLY ADJUST THE MS SETTING TO THE SIXTEENTH NOTE OF THE CHOSEN TEMPO. THE PROPER SETTING CAN BE FOUND BY FINDING THE PERCENTAGE RELATIONSHIP TO QUARTER =  $60 (1000MS)$ , MULTIPLYING THAT PERCENTAGE BY 1000 THEN DIVIDING BY FOUR. THE 1000 MS SETTING IN THE FIRST MOVEMENT SHOULD BE ALTERED IF ANOTHER TEMPO IS CHOSEN, SUCH THAT THE ECHO OCCURS AT THE QUARTER NOTE.

\*SCORE IS IN C. ALL INSTRUMENTS SOUND AS WRITTEN, EXCEPT FOR THOSE THAT TRANSPOSE BY OCTAVE OR DOUBLE-OCTAVE. I.E., THE BARITONE SAX SOUNDS ONE OCTAVE BELOW WRITTEN.

DURATION: 14'

for Flexible Music  
**Atomic Variations**  
I. Inertia

Ethan Wickman  
(2006)

With latent volatility (♩ = 60)

Tenor Saxophone

Guitar

Percussion

delay: ON  
1000 ms w/ ebow

med. sus. cym.

*pp*

With latent volatility (♩ = 60)

Piano

*p*

pedal ad lib., strive for even, sustained texture



T. Sax.

Gtr.

Perc.

Pno.

2

3

T. Sax.

Gtr.

Perc.

Pno.

*n*

(8<sup>va</sup>)

7



4

T. Sax.

Gtr.

Perc.

Pno.

*p*

(8<sup>va</sup>)

7

5

T. Sax.

Gtr.

Perc.

Pno.

(8va)

(8va)

7

7

7

7



6

T. Sax.

Gtr.

Perc.

Pno.

*pp*

(8va)

(8va)

7

7

7

7

7

T. Sax.

Gtr.

Perc.

Pno.

*ppp*



8

T. Sax.

Gtr.

Perc.

Pno.

*p*

9

T. Sax.

Gtr. *p*

Perc.

Pno. *(8va)* *(8va)* 7



10

T. Sax.

Gtr. *ppp* *ebow off*

Perc. *mp*

Pno. *(8va)* *(8va)* 7 *bring out*

11

T. Sax.

Gtr.

Perc.

Pno.

small notes, when present, indicate sounds produced by the digital delay.

12

T. Sax.

Gtr.

Perc.

Pno.

etc.

sim.

13

T. Sax.

Gtr.

Perc.

Pno.

*mp*

*7*

*8va*

*7*



14

T. Sax.

Gtr.

Perc.

Pno.

*mf*

*7*

*8va*

*7*

15

T. Sax. 

Gtr.  delay OFF

Perc. 

Pno. *loco* 



16  $\text{♩} = \text{♩}$  ( $\text{♩} = 70$ )

T. Sax. 

Gtr.  *f*

Perc. 

Pno.  $\text{♩} = \text{♩}$  ( $\text{♩} = 70$ ) 

17

T. Sax. *p* *mp*

Gtr.

Perc. *mf* *p*

Pno. *fp* 6



18

T. Sax. *p* *mf*

Gtr.

Perc. *cresc.*

Pno. 6

19

T. Sax. *mp*

Gtr.

Perc.

Pno.

delay ON:  
143 ms. w/ 2 rpts.

*mf*



20

T. Sax. *fp* *mf*

Gtr. *f* w/ nail or plectrum

Perc. *p* *cresc.* snare

Pno. *f*

(♩ = ♩) ♩ = 105

3

3

23

T. Sax.

Gtr.

Perc.

Pno.

med. sus. cym.

*mf*



25

T. Sax.

Gtr.

Perc.

Pno.

glock.

*sfp* *f* *mf*

*f*

*f*

28

T. Sax. *cresc.*

Gtr. delay OFF

Perc. med. tom-tom

Pno.



$\text{♩} = \text{♩} (\text{♩} = 140)$   
 3 (or as close as possible  
 --see note at beginning  
 of score)

30

T. Sax. *f*

Gtr.

Perc. med. sus. cym. cowbell + brake dr. *f* 3 3 3

Pno.  $\text{♩} = \text{♩} (\text{♩} = 140)$  3

33

T. Sax.

Gtr.

Perc.

Pno.

*mp*

*p*

*mp*

*cresc.*



35

T. Sax.

Gtr.

Perc.

Pno.

*poco f*

*poco f*

*mf*

*poco f*

37

T. Sax.

Gtr.

Perc. *med. sus. cym.*

Pno.

*p*



40

T. Sax.

Gtr.

Perc.

Pno.

*poco f*

43

T. Sax.

Gtr.

Perc.

Pno.



45

T. Sax.

Gtr.

Perc.

Pno.

*più f*

*più f*

solo

*più f*

47

T. Sax.

Gtr.

Perc.

Pno.



49

T. Sax.

Gtr.

Perc.

Pno.

*fp*

*mf*

*mf*

53

T. Sax. *p*

Gtr. *p* delay ON: 107 ms

Perc.

Pno. *p*



56

T. Sax. *p*

Gtr. *p* *cresc.* *poco*

Perc. *p* *cresc.* *poco*

Pno. *p* *cresc.* *poco*

59

T. Sax.

Gtr.

Perc.

Pno.

*a* *poco* delay OFF

glock.

(8)



62

T. Sax.

Gtr.

Perc.

Pno.

*f* *f*

6 6

(8)

64

T. Sax.

Gtr.

Perc.

Pno.

sus. cym.



66

T. Sax.

Gtr.

Perc.

Pno.

*sva*

*tr*

68

T. Sax. *cresc.* *ff*

Gtr. 6 6 *cresc.* 6 6 *ff*

Perc. *cresc.* *f*

Pno. *cresc.* *ff*



71

T. Sax.

Gtr. 6

Perc.

Pno. 6 6 6

II. Pas de Deux

With tragic synchrony

♩ = 60

72 Take B $\flat$  soprano sax

S. Sax.

Gtr. Take ebow, volume pedal

Perc.

Pno.

*ppp*

*fffz*

*p*

l.v.

*Ped.*



77

S. Sax.

Gtr.

Perc.

Pno.

80

S. Sax.

Gtr.

Perc.

Pno.



86 solo:

S. Sax.

Gtr.

Perc.

Pno.

*mp*  $\text{—}$  *poco*

91

S. Sax.

Gtr.

Perc.

Pno.

8<sup>vb</sup>



96

S. Sax.

Gtr.

Perc.

Pno.

*mf*

*mf*

100

S. Sax. *più mf*

Gtr. *poco*

Perc.

Pno.

Detailed description: This system contains measures 100 through 103. The S. Sax. part features a melodic line with eighth-note triplets and a dynamic marking of *più mf*. The Gtr. part consists of arpeggiated chords with a *poco* dynamic marking. The Perc. part has a consistent rhythmic pulse. The Pno. part provides a harmonic accompaniment with a simple bass line.



104

S. Sax.

Gtr.

Perc.

Pno.

Detailed description: This system contains measures 104 through 107. The S. Sax. part continues with eighth-note triplets. The Gtr. part continues with arpeggiated chords. The Perc. part maintains its steady pulse. The Pno. part continues with its simple harmonic accompaniment.

107

S. Sax. *cresc.*

Gtr. *cresc.* *8va*

Perc.

Pno. *sim.*



110

S. Sax. *f*

Gtr. *f* *(8)*

Perc.

Pno. *mf Ped.*

114

S. Sax.

Gtr.

Perc.

Pno.

*dim.*

*p*



117

S. Sax.

Gtr.

Perc.

Pno.

to tenor sax

remove elbow

to glockenspiel

Resolutely

*p*

ped. ad lib.

### III. Separation Anxiety

121 *Nostalgically* ♩ = 56

T. Sax. *pp* *mp* rit.

Gtr. *p* 6 6 6 rit. 3

Perc. *mf* *Nostalgically* ♩ = 56 glock.

Pno. *pp* *mp* rit.



124 a tempo rit.

T. Sax. *pp* *mp*

Gtr. 6 6 6 rit. 3 3

Perc. a tempo (take bow)

Pno. a tempo rit. 13:8 *pp* *mp*

126

T. Sax. *sim.* *pp* *mp* *rit.*

Gtr. *6* *6* *6* *mp* *rit.* *6*

Perc.

Pno. *sim.* *pp* *mp* *rit.*



127

T. Sax. *a tempo* *pp* *mp*

Gtr. *a tempo* *p* *6* *6* *6* *mp* *6* *3* *6*

Perc. *a tempo* *#*

Pno. *a tempo* *pp* *mp* *13:8*



133 ♩ = 84

T. Sax.

Gtr. *solo: steadfastly*  
*mf*

Perc.

Pno. ♩ = 84

(8.)



136

T. Sax.

Gtr.

Perc.

Pno. *mp*

139

T. Sax.

Gtr.

Perc.

Pno.

*mf*

*mf*

*mf*



141

T. Sax.

Gtr.

Perc.

Pno.

*6*

*6*

142

T. Sax.

Gtr.

Perc.

Pno.

*cresc.*

*cresc.*

*cresc.*

3

6

6



143

T. Sax.

Gtr.

Perc.

Pno.

*f*

*f*

*f*

3

6

6

144

T. Sax.

Gtr.

Perc.

Pno.



145

T. Sax.

Gtr.

Perc.

Pno.

*più f*

*più f*

*più f*

8va

146 **Slower**

T. Sax.

Gtr. Take elbow

Perc.

Pno. **Slower** (8) *p*



147  $\text{♩} = 72$

T. Sax.

Gtr.

Perc.

Pno. (8) *pp*  $\text{♩} = 72$

149

T. Sax.

Gtr.

Perc.

Pno.

*p*

smooth, murmuring, legato

*p*



151

T. Sax.

Gtr.

Perc.

Pno.

*p*

*p*

153

T. Sax. *mp*

Gtr. *mp* *cresc.*

Perc. *mp*

Pno. *mp*



154

T. Sax. *poco* *a*

Gtr. *8va* *poco* *a*

Perc. *poco* *a*

Pno. *poco* *a*

155

T. Sax.

Gtr.

Perc.

Pno.

*poco*

(8)



156

T. Sax.

Gtr.

Perc.

Pno.

*mf*

(8)

*mf*

*mf*

*mf*

6

157

T. Sax.

Gtr.

Perc.

Pno.



158

T. Sax.

Gtr.

Perc.

Pno.

*f*

delay ON:  
125 ms

VI.

*gliss.*

sus. cym.

*mf*

*f*

6

IV. Murder by Numbers

**Abrupt and decisive**

160  $\text{♩} = 120$  to baritone sax

T. Sax. *ff*

Gtr. *ff*

Perc. brake drum (see key at beg. of score)

*p cresc. mf f*

**Abrupt and decisive**

8<sup>va</sup>  $\text{♩} = 120$

Pno. *ff*



165

B. Sax.

Gtr.

Perc. w/ snare OFF

*sfz p*

Pno.

170

B. Sax.

Gtr.

Perc.

Pno.

*f*

play surrounding, muted strings

w/ delay, 125 ms + plectrum



174

B. Sax.

Gtr.

Perc.

Pno.

*mf*

Angular and aggressive

178

B. Sax.

Gtr.

Perc.

Pno.



182

B. Sax.

Gtr.

Perc.

Pno.

185

B. Sax.

Gtr.

Perc.

Pno.

*sfz* *mf*

*mf*

*mf*

8va



188

B. Sax.

Gtr.

Perc.

Pno.

as before

*p* *mf*

(8)

191

B. Sax.

Gtr.

Perc.

Pno.

(8) 7

194

B. Sax.

Gtr.

Perc.

Pno.

197

B. Sax.

Gtr.

Perc.

Pno.

*sub. p*

*p*

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

*p* *mf*



200

B. Sax.

Gtr.

Perc.

Pno.

202

B. Sax. *mf*

Gtr. *mf*

Perc. *mf*

Pno. *mf*



205

B. Sax. *f*

Gtr. *f* delay OFF

Perc. *f*

Pno. *f*

208

B. Sax.

Gtr.

Perc.

Pno.

delay ON

*p*

*pp*

*p*

*pp* sustained, placid-  
as in Var. II

*p*



211

B. Sax.

Gtr.

Perc.

Pno.

214

B. Sax.

Gtr.

Perc.

Pno.

Measures 214-216. B. Sax. is silent. Gtr. plays a melodic line with slurs and accidentals. Perc. plays a steady eighth-note pattern. Pno. has a complex accompaniment with slurs and accidentals.



217

B. Sax.

Gtr.

Perc.

Pno.

Measures 217-220. B. Sax. is silent. Gtr. continues the melodic line. Perc. continues the eighth-note pattern. Pno. continues the accompaniment with slurs and accidentals.

220

B. Sax.

Gtr.

Perc.

Pno.

*f*

*mf*

*f*



223

B. Sax.

Gtr.

Perc.

Pno.

*mp*

*poco f*

*mp*

*poco f*

*mf*

*mp*

*poco f*

226

B. Sax.

Gtr.

Perc.

Pno.

*sub. pp*

*cresc.*



230

B. Sax.

Gtr.

Perc.

Pno.

*poco*

*mf*

*cresc.*

*poco*

*poco*

233

B. Sax. *poco* *a*

Gtr. *a*

Perc. *a*

Pno. *a*



236

B. Sax. *poco*

Gtr. *poco*

Perc. *poco*

Pno. *poco*

238

B. Sax.

Gtr.

Perc.

Pno.

*ff*

*f*

*ff*

The image shows a musical score for measures 238 to 241. The score is written for four instruments: B. Sax., Gtr., Perc., and Pno. The key signature is one sharp (F#) and the time signature is 4/4. The B. Sax. part starts with a melodic line in measure 238, followed by a sustained note in measure 239, and then a melodic line in measure 240. The Gtr. part features a dense chordal texture in measure 238, followed by a melodic line in measure 239, and then a melodic line in measure 240. The Perc. part has a rhythmic pattern in measure 238, followed by a melodic line in measure 239, and then a melodic line in measure 240. The Pno. part has a melodic line in measure 238, followed by a melodic line in measure 239, and then a melodic line in measure 240. The dynamic markings *ff* and *f* are placed above the staves for the B. Sax., Perc., and Pno. parts respectively.

V. None Shall Sleep  
after Giacomo Puccini

With slow, subdued solemnity

240  $\text{♩} = 40$

B. Sax. to tenor sax

Gtr. delay OFF

Perc. sus. cym. I.v. *p*

Pno.  $\text{♩} = 40$  With slow, subdued solemnity *p* 8<sup>vb</sup>



244 *sotto voce*

T. Sax. *p*

Gtr.

Perc.

Pno. *p* (8)

247

T. Sax.

Gtr.

Perc.

Pno.



249 rit. . . . . **With conviction**

♩ = 56

T. Sax.

Gtr.

Perc.

Pno.

susp. cymb.

glock.

w/ bow

*pp* *poco* *pp* **With conviction**

rit. . . . . ♩ = 56 *molto leggero*

*pp*

251 *cantabile*

T. Sax.

Gtr.

Perc.

Pno.



252

T. Sax.

Gtr.

Perc.

Pno.



256

T. Sax.

Gtr. *ebow; delay ON*  
250 ms *gliss.*

Perc. *sus. cym.*  
*pp* *mf*

Pno.



258 **Più mosso**

T. Sax. *mf*

Gtr.

Perc. *to glockenspiel*

Pno. **Più mosso**  
*meno mf*

259

T. Sax.

Gtr.

Perc.

Pno.

Detailed description: This system covers measures 259 and 260. The T. Sax. part features a long, sustained note starting in measure 259 and ending in measure 260, with a sharp sign (#) above the notehead. The Gtr. part has a single note in measure 259. The Perc. part shows a bar line in measure 259. The Pno. part consists of a complex rhythmic pattern with a '7' marking, repeated four times across measures 259 and 260. The piano part is written in a grand staff with treble and bass clefs.



260

T. Sax.

Gtr.

Perc.

Pno.

Detailed description: This system covers measures 260 and 261. The T. Sax. part features a long, sustained note starting in measure 260 and ending in measure 261, with a flat sign (b) above the notehead. The Gtr. part has a single note in measure 260 with a flat sign (b) above it. The Perc. part shows a bar line in measure 260. The Pno. part consists of a complex rhythmic pattern with a '7' marking, repeated four times across measures 260 and 261. The piano part is written in a grand staff with treble and bass clefs.

261

T. Sax.

Gtr.

Perc.

Pno.

8<sup>vb</sup>



262

T. Sax.

Gtr.

Perc.

Pno.

*f*

263

T. Sax.

Gtr. take off ebow

Perc. glock. mp

Pno. sub. mp



264

T. Sax. mp

Gtr. mf

Perc.

Pno.

265

T. Sax.

Gtr.

Perc.

Pno.



266

T. Sax.

Gtr.

Perc.

Pno.

*mf*

*mf*

*mf*

267

T. Sax.

Gtr.

Perc.

Pno.



**Meno mosso**  
268 ♩ = 56

T. Sax.

Gtr.

Perc.

**Meno mosso**  
♩ = 56

Pno.

**Poco meno mosso**

270 

T. Sax.  to bari. sax

Gtr.  *pp* *p*


Perc. 

Pno.  *pp*

**Poco meno mosso**

**Più mosso**

272

B. Sax. 

Gtr.  *f*

Perc.  *f*

Pno.  *mf* **Più mosso** *f*

*f*

*mf* **Più mosso**

*f*



274

B. Sax.

Gtr.

Perc.

Pno.

275

B. Sax.

Gtr.

Perc.

Pno.

building momentum and intensity...

276

B. Sax.

Gtr. solo: *più f*

Perc. *mf* building momentum and intensity...

Pno.

277

B. Sax.

Gtr.

Perc.

Pno.

278

B. Sax.

Gtr.

Perc.

Pno.

7

7

7

7

V

V

V

VI

VI

279

B. Sax.

Gtr.

Perc.

Pno.

*ff*

*ff*

*ff*

*ff*



283 ♩ = 66

B. Sax. *p*

Gtr. solo: *mp*

Perc.

Pno. *sub.p*



286

B. Sax.

Gtr. *mf*

Perc.

Pno. *mp*

288

B. Sax. *cresc.* *poco*

Gtr. *cresc.* *poco*

Perc.

Pno. *cresc.* *poco*



290

B. Sax. *a*

Gtr. *a* 3 6 6

Perc. *a*

Pno. *a* 6 6 6 6

291

B. Sax.

Gtr.

Perc.

Pno.

*poco*

3

6

6

3

6

293

B. Sax.

Gtr.

Perc.

Pno.

6

10

70

**Maestoso** ♩ = 60

294

B. Sax.

Gtr. *fff* delay: ON  
1 ms

Perc. *fff*

Pno. *fff* **Maestoso** ♩ = 60



295

B. Sax.

Gtr. *p*

Perc. *p* 8<sup>va</sup>

Pno. *p* 8<sup>va</sup>

296

B. Sax.

Gtr.

Perc.

Pno.

Score for measures 296-297. The B. Sax. and Gtr. parts are silent. The Perc. part features a rhythmic pattern of eighth notes with a '7' above the staff. The Pno. part has a dynamic marking of *f* and includes a key signature change to two sharps (F# and C#) and a chord structure with Roman numerals IV and VI.



297

B. Sax.

Gtr.

Perc.

Pno.

Score for measures 297-300. The B. Sax. part is silent. The Gtr. part has a dynamic marking of *p* and features a sixteenth-note pattern with a '6' below the staff. The Perc. part has a dynamic marking of *p* and a '7' above the staff. The Pno. part has a dynamic marking of *p* and features a '7' above the staff and an *8va* marking.

298

B. Sax. *mf*

Gtr. take elbow *mf*

Perc. *mf*

Pno. *mf*



299

B. Sax. *p*

Gtr. *p*

Perc. *p*

Pno. *p*

300

$\text{♩} = \text{♩} (\text{♩} = 70)$

B. Sax. *pp*

Gtr.

Perc. *pp*

Pno. *pp*

302

*rit.* . . . . .

B. Sax. *molto* *p*

Gtr. *n*

Perc. *f* *rit.* *pp* *sus. cym.* *l.v.*

Pno. *molto* *p*

August 7, 2006  
Eau Claire, Wisconsin