

Opposite Earth

animated notation piece
for open instrumentation

by Jeff Snyder

INFORMATION FOR PERFORMERS:

Each player is assigned a ring/orbit. There are 8 rings, and players can double or triple on a ring if there are more than 8 players. Lower pitched instruments should be assigned outer rings, and higher pitched instruments should be assigned inner rings (closer to the sun). On the notation page, "planet 1" is the outermost ring and "planet 8" is the innermost ring.

The instrumentation of the piece is open. It can be played on acoustic instruments, electronic instruments, or a mix of the two. There is a Max patch that can be used to play the exact pitches electronically, and if desired the whole group can perform using this patch. It was originally written for PLOrk (the Princeton Laptop Orchestra) and PLOrk plays it with a mix of some members playing this patch and others playing acoustic instruments. Acoustic instruments aim for the cents deviations from equal temperament as much as they can – some instruments, such as piano, will just play the equal-tempered pitches, others, such as violin, will be able to get closer, but there is no need for them to be exact.

In addition to a pitched instrument, each performer must have a "homogenous" unpitched instrument, and a "heterogeneous" unpitched instrument. The homogenous instrument is chosen as a group, and can be something like a woodblock that everyone has a version of. The heterogeneous instrument is chosen individually by the player and should be different from all the other players' heterogeneous instrument.

When a planet on your ring crosses a colored "play line", then you play a note. Which note you play is determined by which ring you are and which color line you crossed.

When a planet on your ring crosses a colored line, you play the pitch from your part that is marked with the color of the crossed line. For instance, if you are the outermost ring and your planet crossed a blue line, you would play the main note in the "blue" measure on the planet 1 part – in this case, a B below low C. If you are innermost ring and your planet crossed a green line, then you would play one of the two main pitches in the "green" measure of the planet 8 part (planets 7 and 8 have two pitch options for each color) – in this case, a B above middle C, 26 cents flat, or an F above high C. When a moon around your planet crosses a line, you play one of the secondary pitches from the measure of the line color – the "moon" pitches are surrounded by curly brackets and have smaller noteheads in the notation.

The size of the planet should determine the decay time of the sound (larger = longer). The color of the background should determine the brightness of the sound (pink = bright, purple = dark).

When a white hash mark crosses a "play line" on your ring, you play a sound on your "homogeneous" unpitched instrument. When a white circle crosses a "play line" on your ring, you play a sound on your "heterogeneous" unpitched instrument. If there are multiple "play lines" visible, focus on the rightmost or (if there is no rightmost) uppermost play line. The amplitude of your sound should be proportional to the size of your hash mark or white circle (larger = louder).

CONDUCTOR / SCORE CONTROL INFORMATION:

One option for score control is to just play a video of a run of the score. It's more interesting, though, to control it live, so you can improvise with the ensemble.

If you want to control the score, run the conductor software, which is a webpage (programmed in javascript), at this address: http://www.scattershot.org/opposite_earth_conductor.html

To try it out:

hit ` (the key with the tilde on it) and then 9

8 rings will appear. What you did was select all rings (`) and make the orbits visible (9)

hit p

8 planets will appear on the rings. (p) makes planets visible

hit "left arrow"

you'll see a line appear. The four arrow keys produce different lines.

Looking at that, you can see the basic concept of the piece - the planets go around, each planet is a performer, and they play their note when their planet crosses the line.

extra fun:

try turning off the line, and then hitting "s" or "d" and turning the line back on. Pressing a, s, d, f, g all select different colors for the next line you add. These colors mean which chord you pull your pitches from (based on the pdf file of the pitch collections).

try pressing 1 before hitting p. You will selectively hide or show the planet number you selected. 1-8 select planets/rings/etc. ` selects all.

Try pressing 7 and then pressing 0. Now you have a moon on orbit 7. You can do this with any planet/ring. (0) = toggle moon visibility.

Try moving the mouse. Up/Down makes the background pink/purple. This shows tone color. Left/Right changes the size of the planet, to reflect decay time for the note (larger = longer).

Try pressing ` and then -. This adds little lines to each planet, a certain number of hash marks that spin around. These are intended to signify unpitched sounds - when they cross a line you make an unpitched sound. Try pressing the bottom row of keys from z to /. This sets the subdivision for those little hash marks, speeding up and slowing down the rhythm. Then try pressing one of the keys on the row q/w/e/r/t/y. These letters change the size of the hash marks to signify the amplitude of the unpitched sounds.

The idea for the unpitched sound is that all performers have one "homogenous" unpitched sound (like a woodblock or a damped metal pipe section) that all performers have a version of. Then, the performers also each have their own individual "heterogeneous" unpitched sound (could be a cymbal, tap shoes, anything). The symbol to indicate a heterogeneous sound is the open circle. Try pressing the "v" key to change the hash mark lines into open white circles.

So, to sum it up:

` = select all

1-8 = select individual orbit

9 = toggle ring visibility

0 = toggle moon visibility

p = toggle planet visibility

- = toggle unpitched sound marks visibility

\ = toggle whether unpitched sounds are "homogenous" (white line) or "heterogeneous" (white circle) unpitched sounds.

q-y = unpitched sound amplitude (indicated by size)

a-g = chords (indicated by color of play lines)

z-/ = subdivision for unpitched sounds

up/down/left/right arrows = toggle the 4 line positions on/off

All sounds are intended to be performed by the musicians, except for the sounds of planets colliding with moons. When that happens, the computer running the score webpage will make a sound, so you can plug your computer into a sound system to have that if you want it.

Opposite Earth

small noteheads in {} are moons
 numbers above noteheads are cents deviation from equal temperament

by Jeff Snyder

1 : yellow 2 : green 3 : blue 4 : red 5 : grey

Planet 8: $8va$
 -45 or $\{ -45 \}$ +0 -17 -49 -26 or +0 -30 -49 -47 or -31 -31 -47 -16 or $\{ -16 \}$ +0 +10 +25 +30

Planet 7: $8va$ $8va-$ $8va$ $8va-$ $8va$
 -17 or -49 $\{ -45 \}$ +0 -30 or -49 -26 +0 -31 or $\{ -31 \}$ -47 -31 -16 or $\{ -16 \}$ +10 -16 $\{ -16 \}$ +0 +0 or $\{ +0 \}$ +30 +25 +6

Planet 6: $8va-$ $8va-$
 -9 $\{ -17 \}$ -45 +10 $\{ -30 \}$ -26 -37 $\{ -31 \}$ -47 -10 $\{ -16 \}$ -16 +6 +0 +6

Planet 5: $8va-$
 -10 $\{ -9 \}$ -17 -27 $\{ +10 \}$ -30 -33 $\{ -37 \}$ -31 -14 $\{ -10 \}$ -16 -47 +6 +0

Planet 4: $8va-$
 -42 -10 -9 +44 -27 +10 -35 -33 -37 -45 -14 -10 +4 -47 +6

Planet 3: $8va-$
 -14 -42 -10 +9 +44 -27 -33 -35 -33 -27 -45 -14 +2 +4 -47

Planet 2: $8va-$
 -11 $\{ -14 \}$ -42 -12 $\{ +9 \}$ $\flat +44$ +2 $\{ -33 \}$ -35 -14 -27 -45 -14 $\{ +2 \}$ +4

Planet 1: $8va-$
 -9 -11 -14 +42 -12 $\flat +9$ +0 +2 -33 -13 -14 -27 +0 -14 +2