Trends

from the

Periodic Table of Elements

a suite
for piano solo

Peter McKenzie Armstrong

2020

Edition Ottaviano Petrucci

NOTES

SOURCE DATA

Periodic Table: These movements each trace, in atomic–number order through the 118 known elements, the values of one of fifteen properties, correctly termed "trends":

1. Enthalpy–Vapor.
2. MeltingPoint
3. Density
4. Electronegativity
5. AtomicRadius
6. Enthalpy–Fusion
7. BoilingPoint
8. Orbitals
9. OxidaState–Min
10. IonicRadius
11. ElectronAffinity
12. IonizationPotential
13. AtomicWeight
14. OxidaState (Gaps)
15. Isotopes

COMPOSITION

Generation: Each data series was scaled and rounded, first to index 6 octaves of keyboard pitch, separately to index 16 levels of duration. The elements of each resulting monophonic series were then cardinally/ordinally swapped, yielding an "opposite" series embracing simultaneity.

Section pairing: In the final score, some but not all of the value/index swapped sections directly abutt their monophonic counterparts. I have repositioned some for better pattern contrast.

PERFORMANCE

Rhythm: The elapsed time between successive note–beginnings is proportional to the horizontal space between the noteheads. The individual note's sounding duration is proportional instead to its notehead size –– but flexibly so, as each of the (5) sizes embodies any of several close values from the generated set.

Articulation: Notes are to be separated by articulative silence *unless* a slur connects them. Within a slur legato applies up to, but not beyond, its final note. Other marks (spiccato, tenuto) are meant to nuance, not contradict, the above. Diagonal lines between staves are meant to extend slurs across the system.

Pedaling: Where, as often, the hand cannot manage legato connection, slurs are to be interpreted as pedal indications. The pedal is to be used only in this way – not also to connect between slurs.

Dynamics: Volume is generally to parallel duration, that is, note–head size, unless qualified by accent.

Superclusters: As I have chosen to include all pitches initially generated, the lower (swapped–parameter) sections contain chords of up to 29 pitches! The player is humbly invited to edit (roll/break/trim) these at his/her discretion.

Duration: 12.6 minutes

– PMA

in memoriam Dmitri Mendeleev

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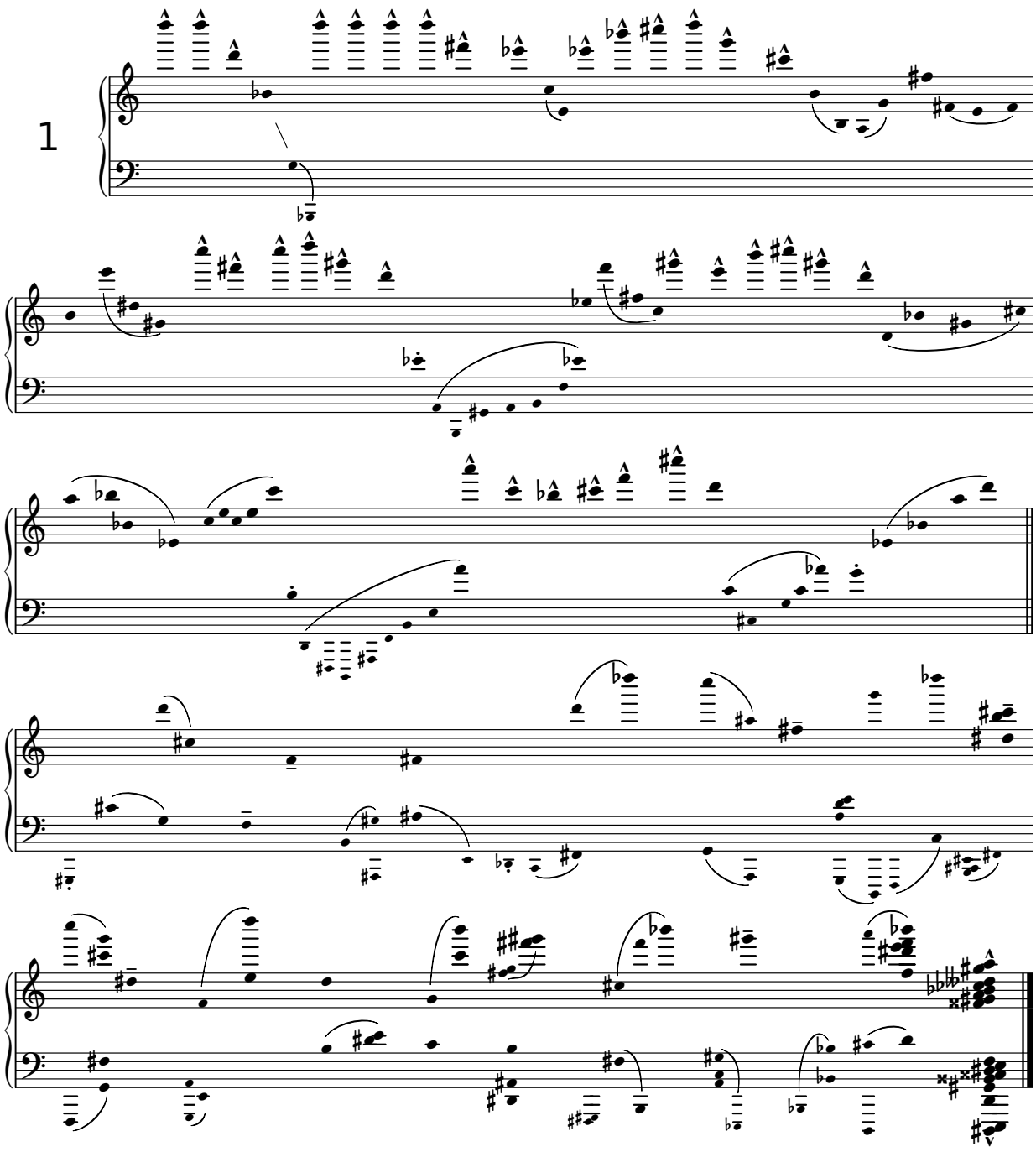
Enthalpy-V



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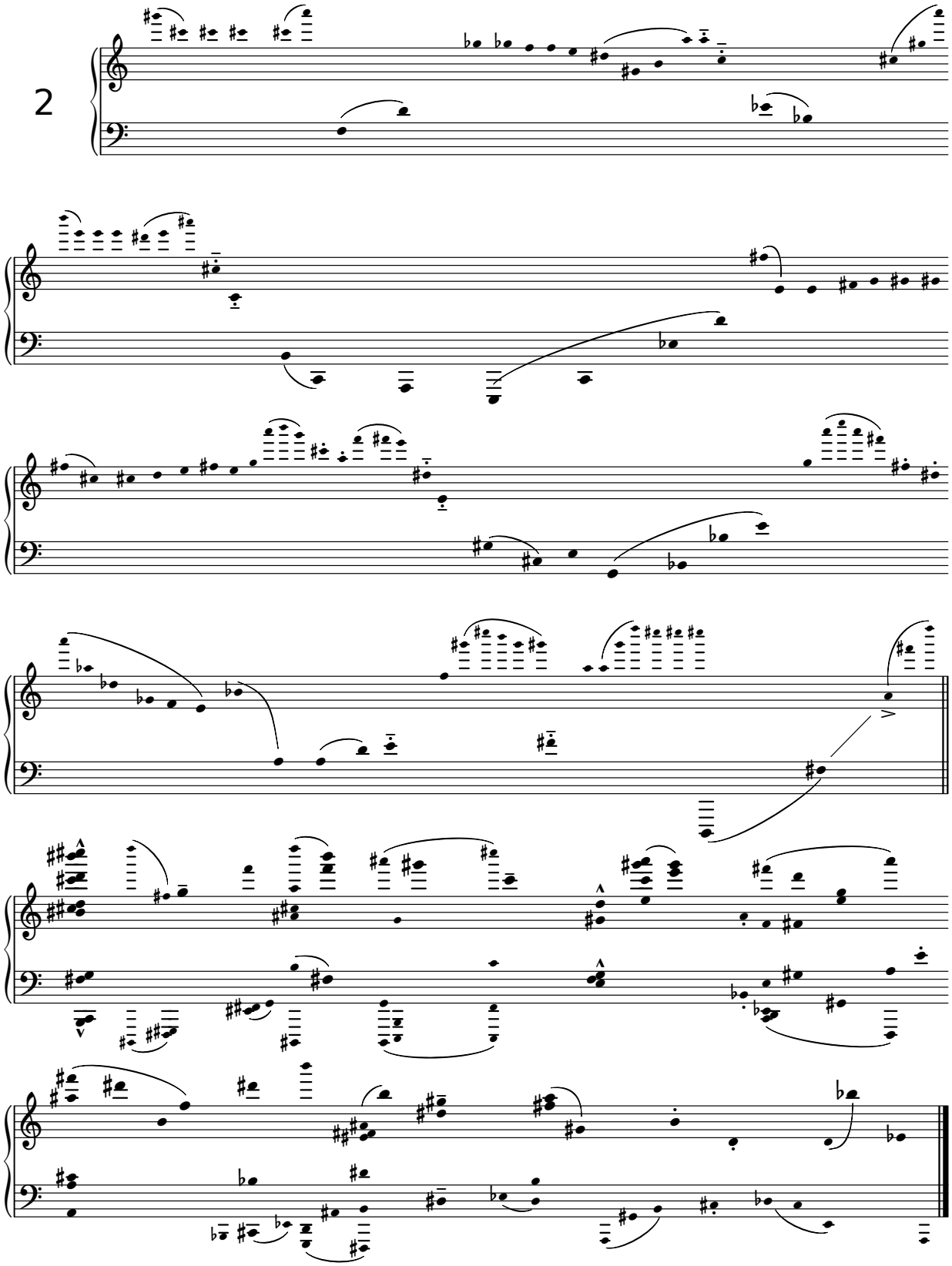
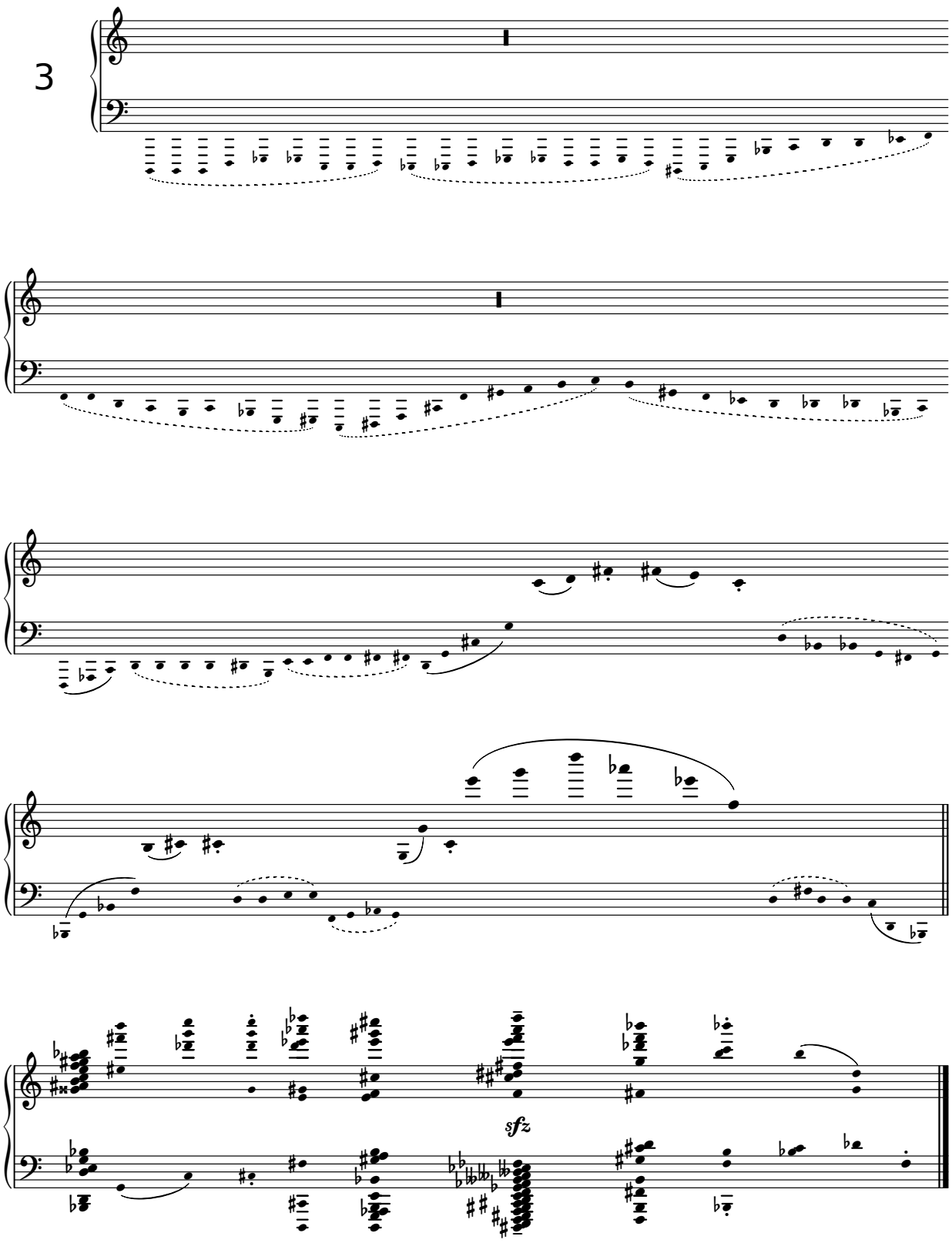
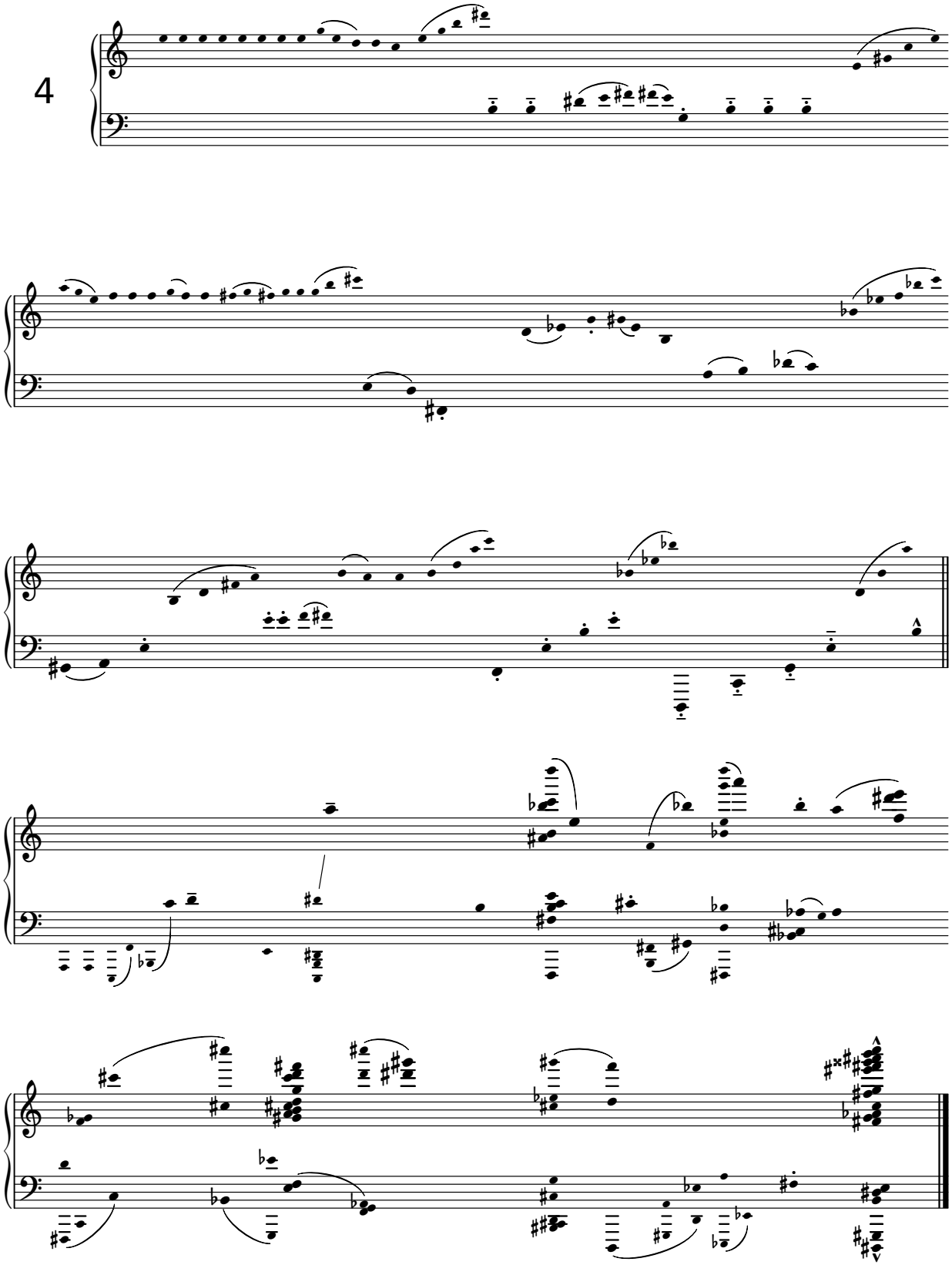
Melting-Pt



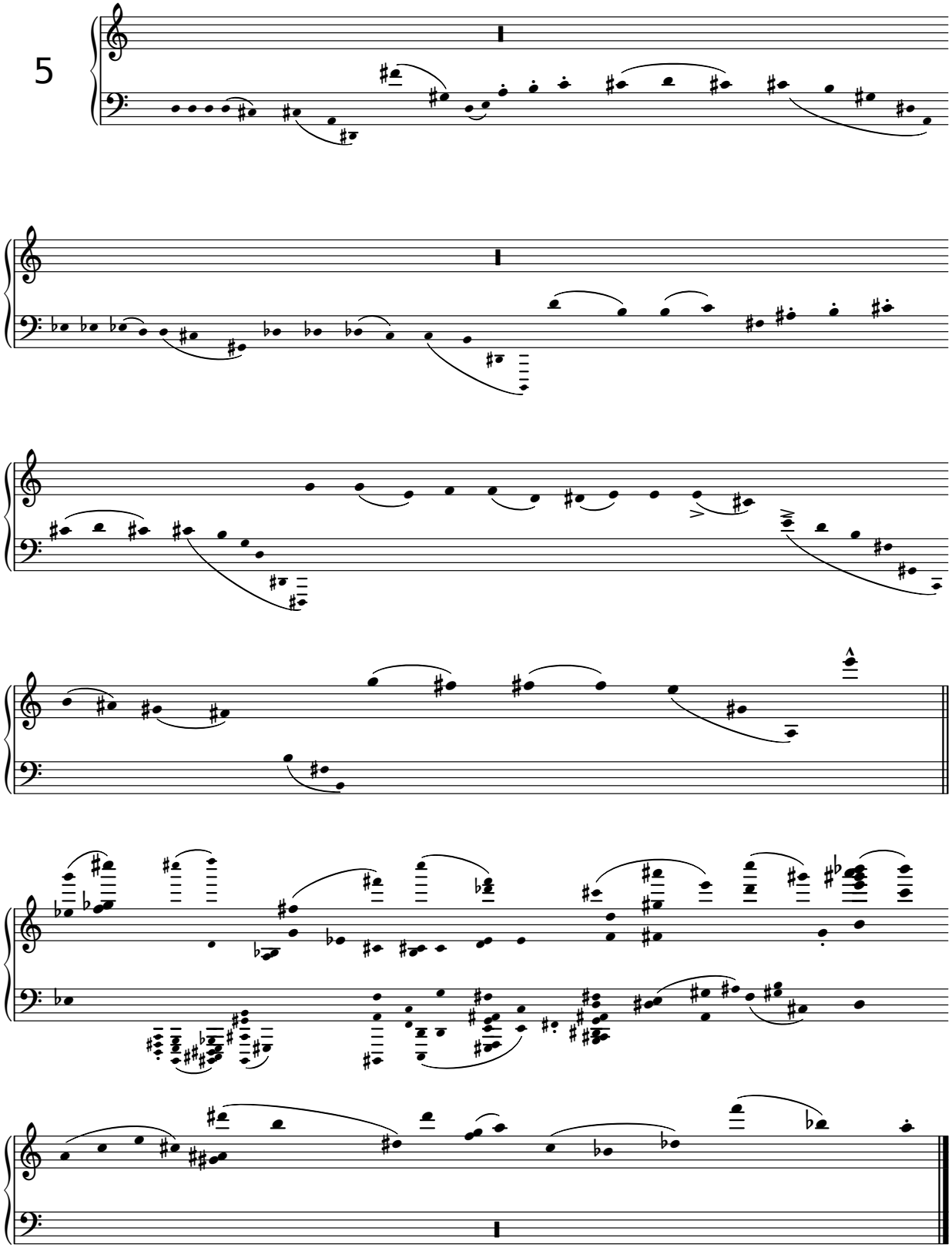
Density



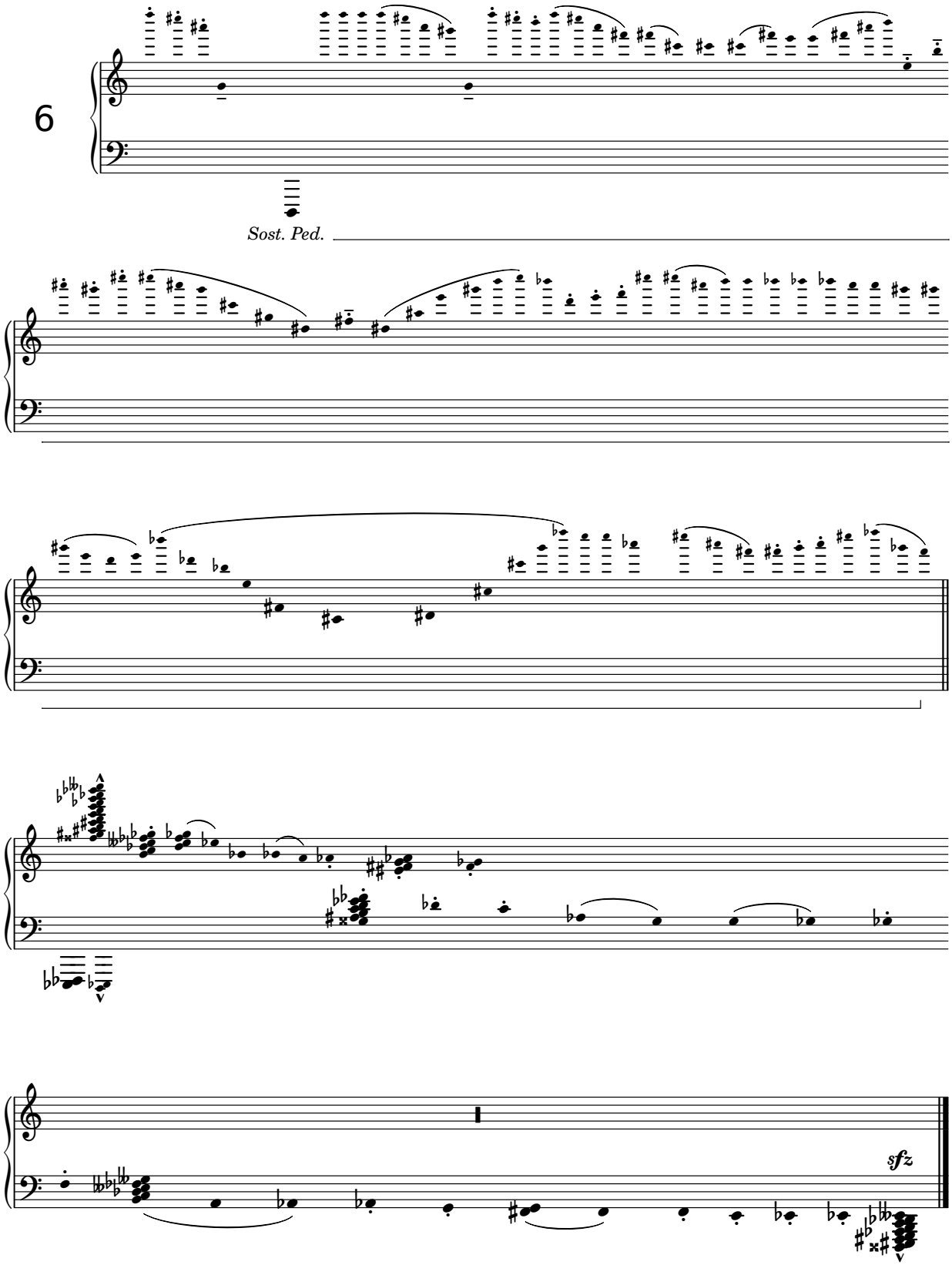
Electroneg



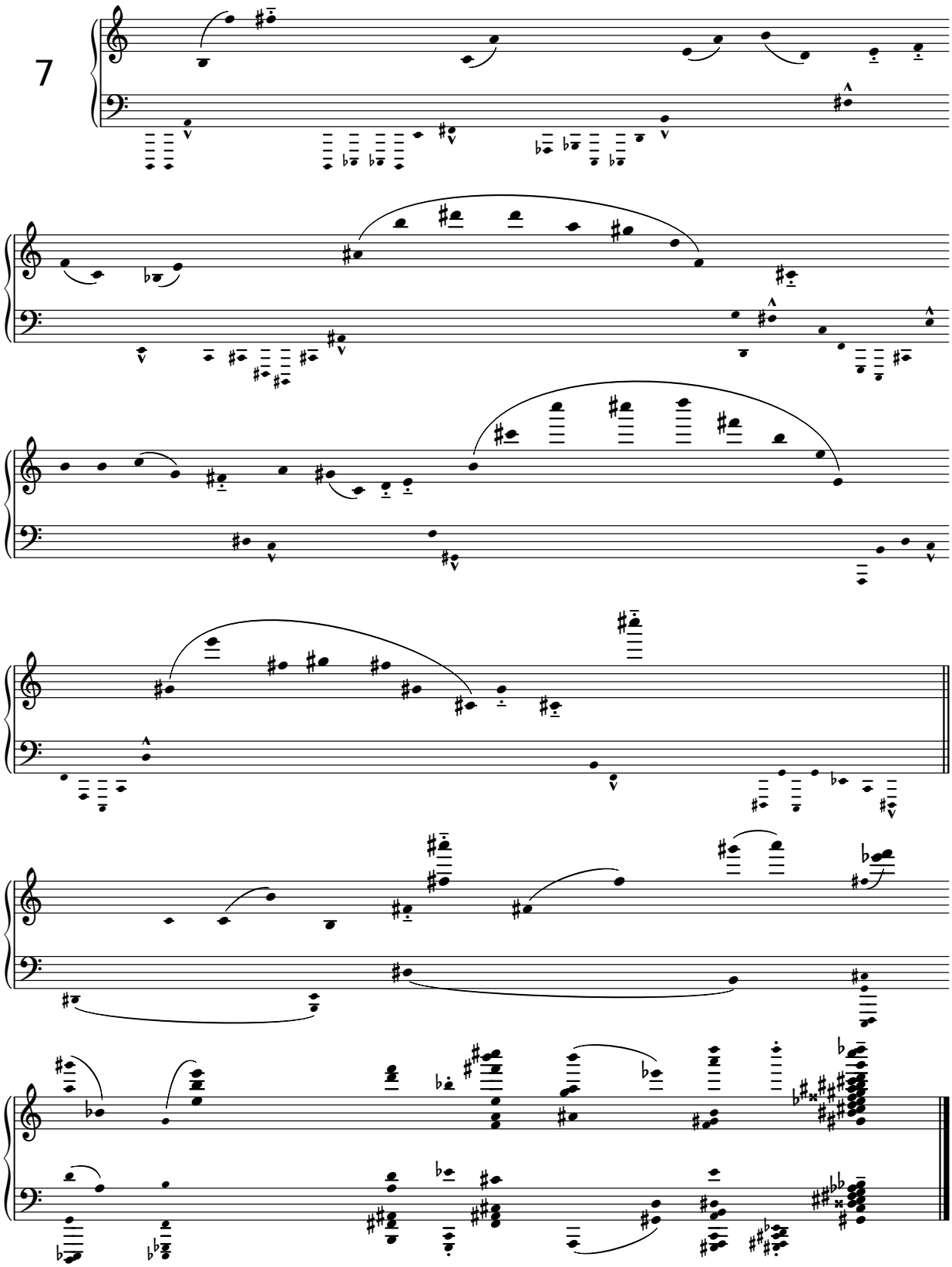
A-Radius



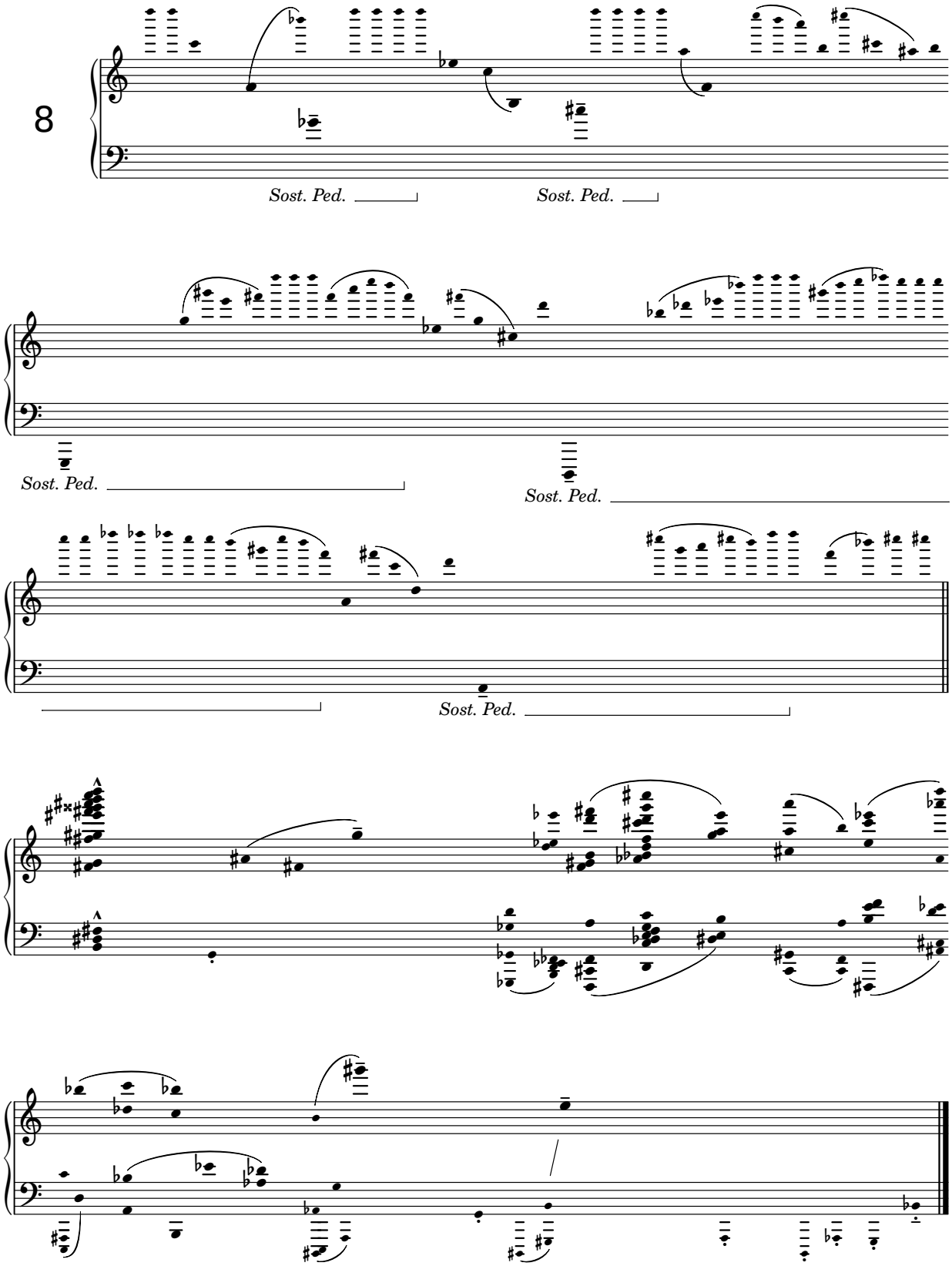
Enthalpy-F



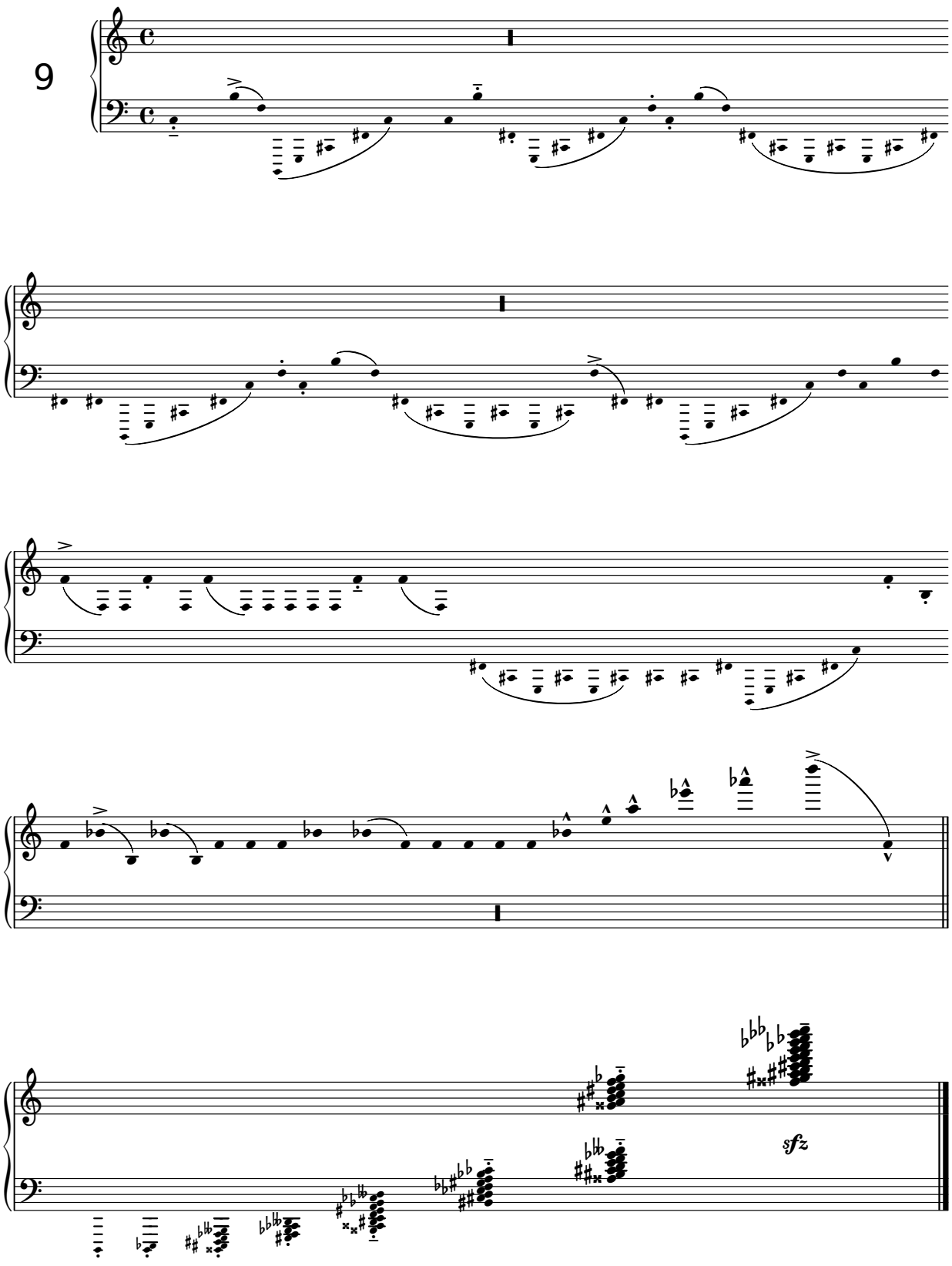
Boiling-Pt



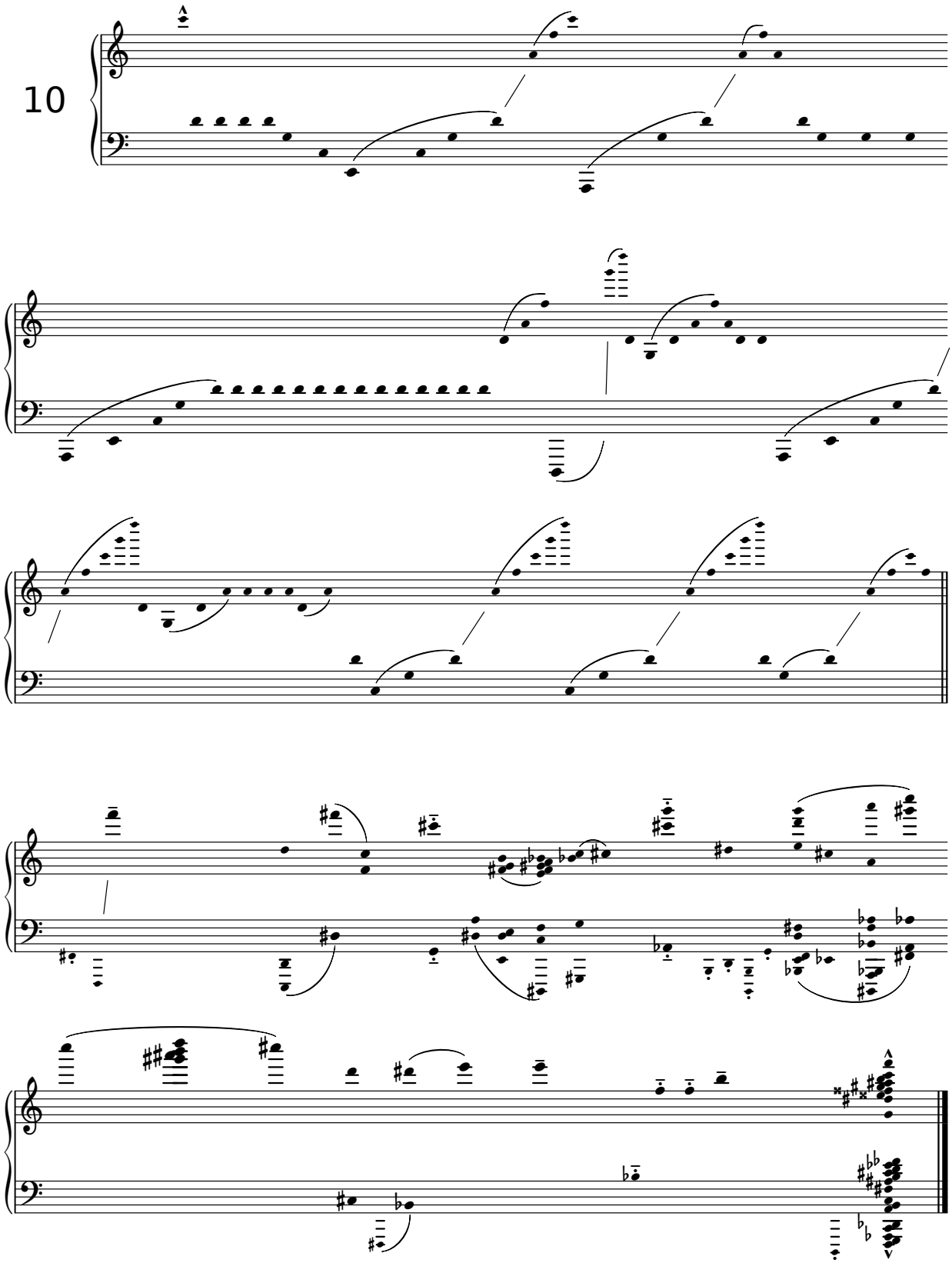
Orbitals



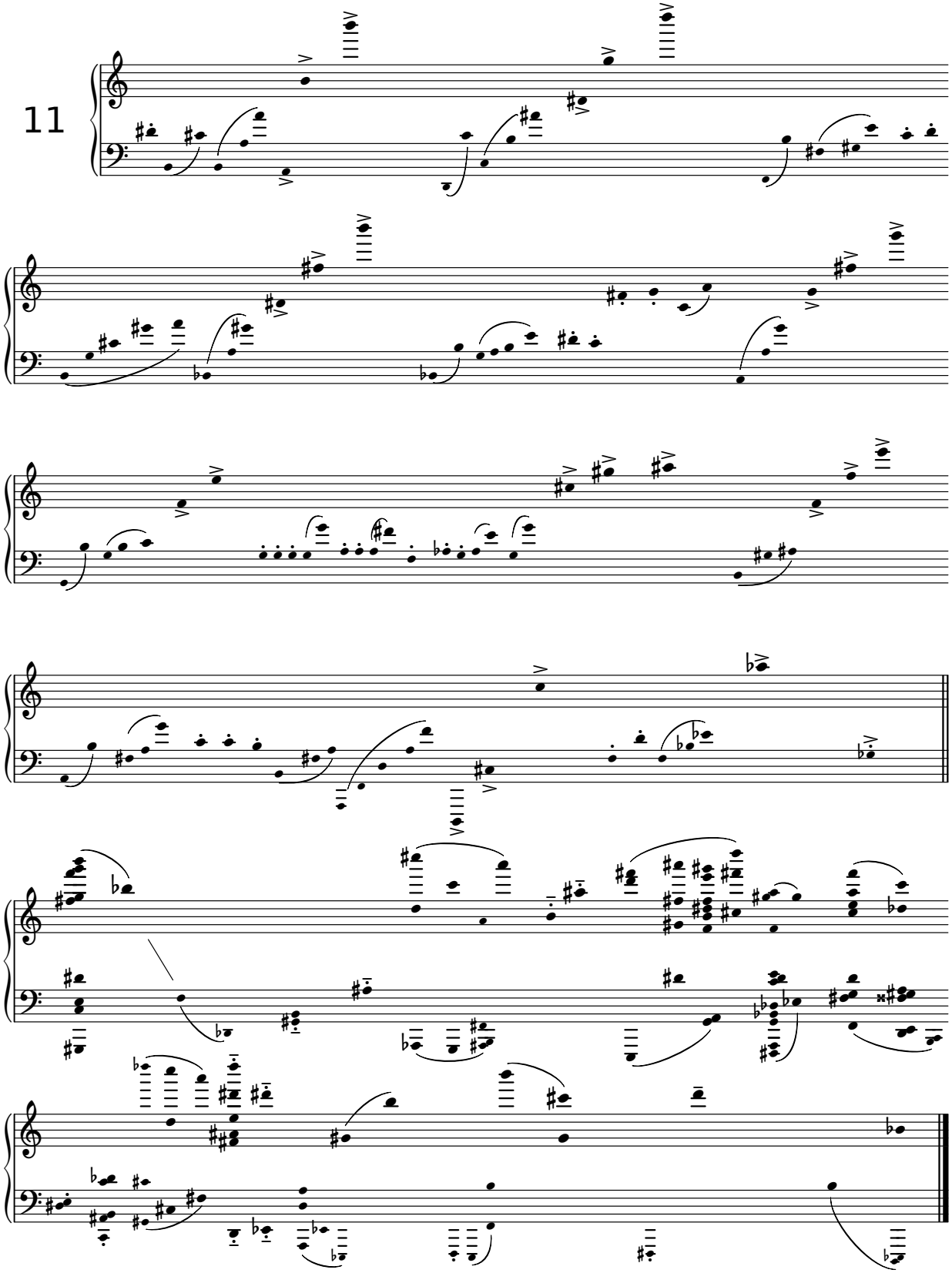
Oxi-State Min



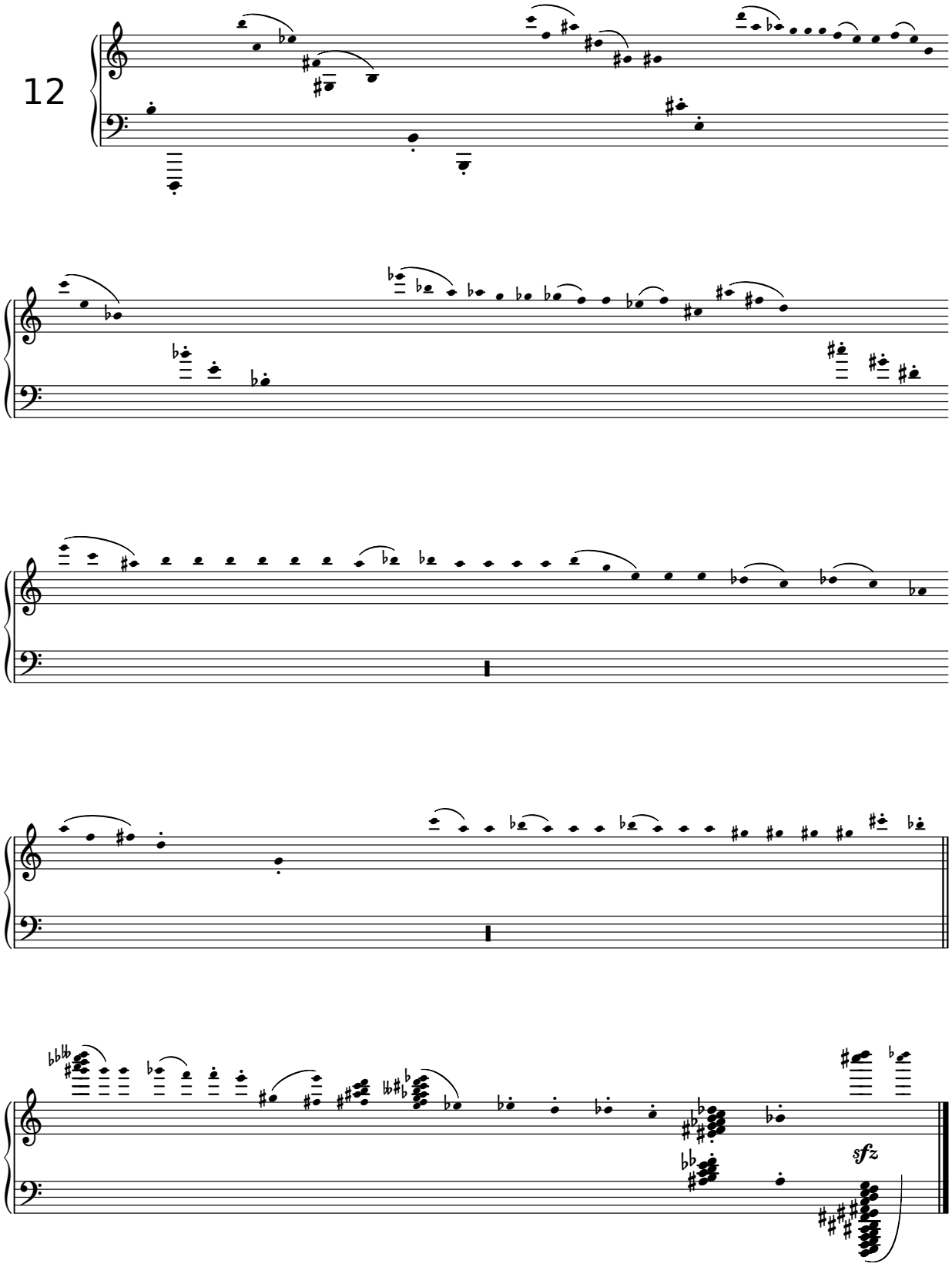
I-Radius



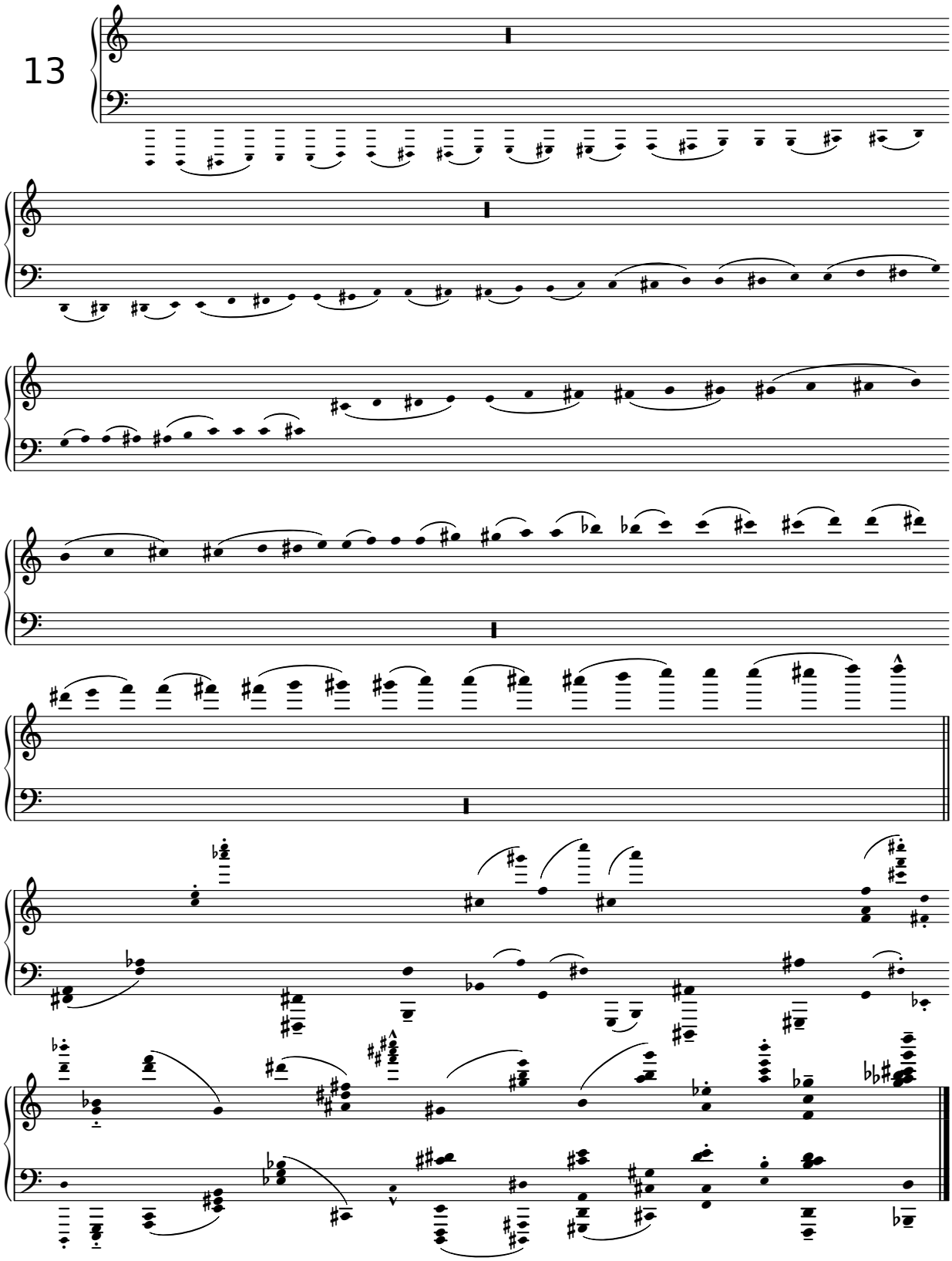
Elec-Affin



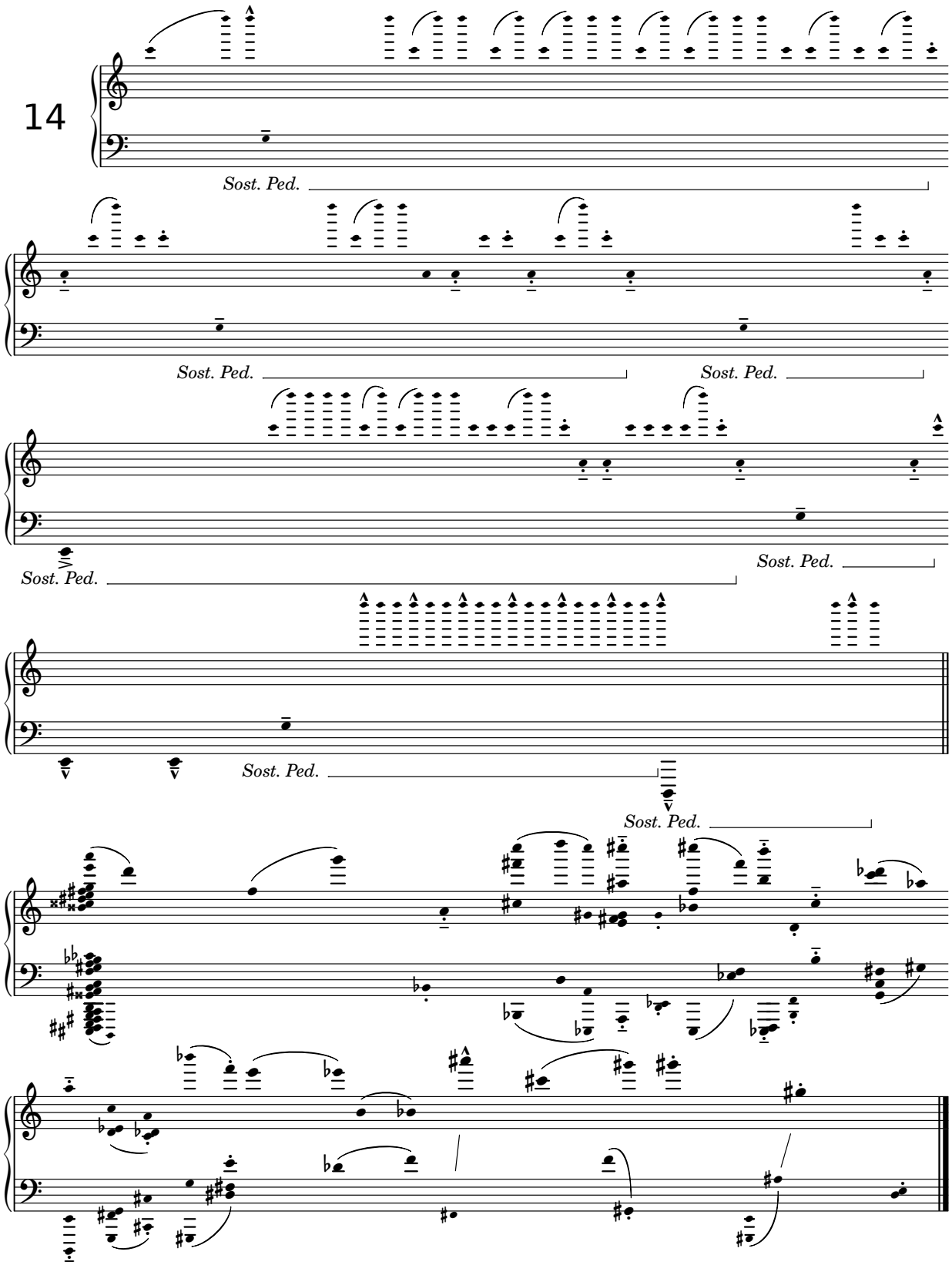
Ioniz-Poten



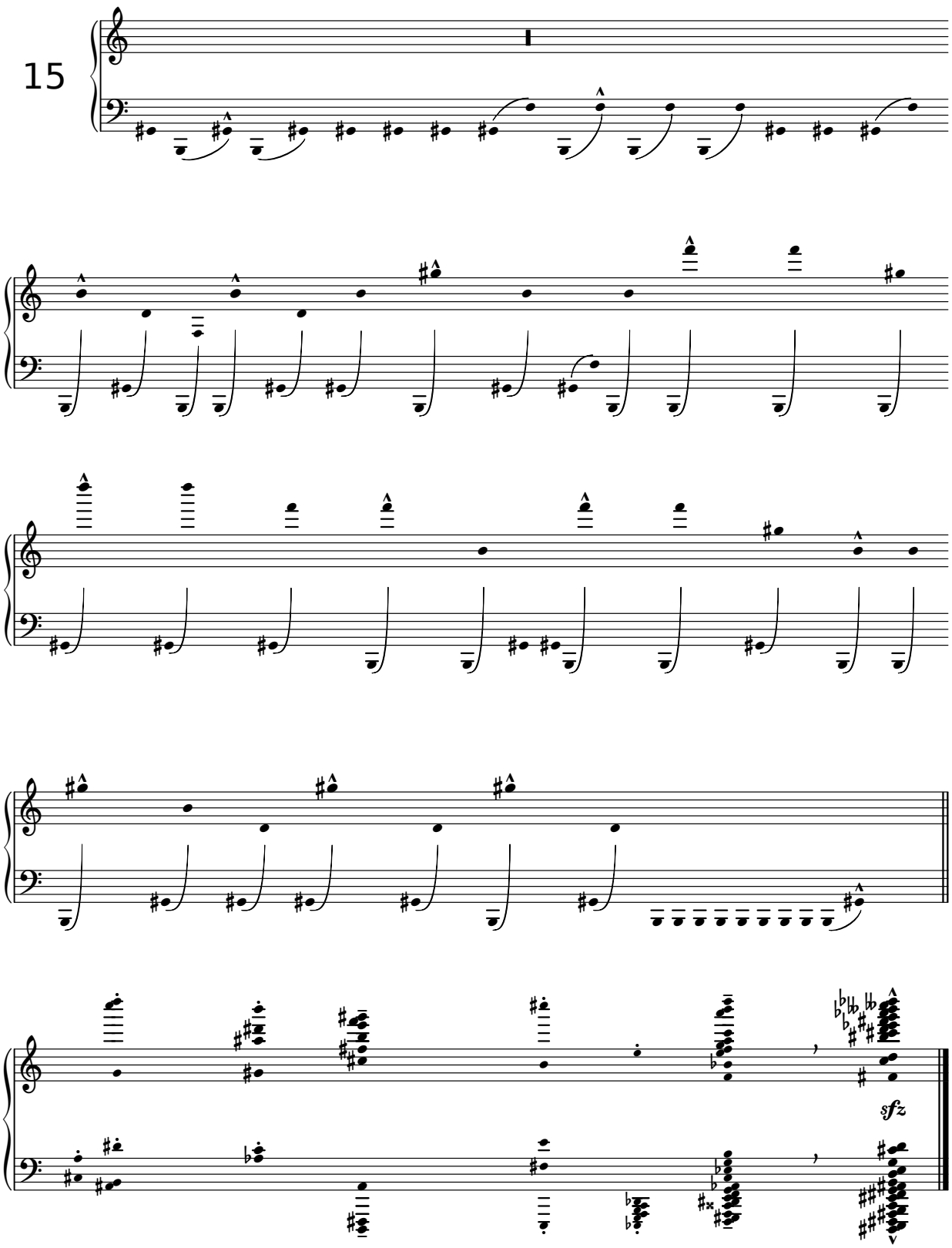
A-Weight



Oxi-State Gaps



Isotopes



Music engraving by LilyPond 2.18.2--www.lilypond.org