

espacios encordados for feedback piano espacios encordados / for feedback piano and digital manipulation ('stringed spaces')

The piece explores the piano as a resonant box through the experimentation of different excitatory techniques, combining its acoustic response to various frequencies and impulses in three different movements.

These movements are analogies of different imaginary spaces recreated by the internal amplification of the instrument. The sound behavior within its architecture in connection with the performer's actions constitutes each of these, which consist of an attacked muted piano, a piano played by its own sound refractions and a piano played by a computer.

# **General indications**

- I. Technical requirements
  - The piece is to be played on a grand piano.
  - No need of computer assistance is required since the computer program is designed to run only with the aid of any single switching external device (MIDI, OSC). The computer program is available upon request.
  - The feedback system consists of four speakers (or any effective sound transducer) powered by a set of low voltage amplifiers and a pair of electrets miniature microphones, (more about it in movement description) although this is very easy and low cost to replicate this is available upon request to the composer.
  - The piano is amplified with two microphones inside it that are routed to a stereo system. Other configurations can be explored depending on the available system
  - A small light is to be placed inside the piano. This is to be on for the second and third spaces/movements while the rest of the hall remains dark. (Optional)

# 2. Duration

The total duration of the piece is .ca 20 minutes long, however (with the exception of the first movement) all durations are suggested times as the performer is required to acquire a fair degree of familiarity with the system, which responds differently according to the physical conditions of instrument and the venue, therefore the duration of each section may vary depending of their content and instrumental responsiveness.

#### 3. Score

As the piece develops mainly out of unconventional techniques of sound production, the notation of these actions is a <u>graphical description</u> of the main processes and sounds; nevertheless, the musical core of each section, and its performance actions, is explained in a text inside a box at the beginning of each section. Within these instructions, and the rest of the contained graphical information, the performer is expected to take the necessary freedom to undertake the musical processes, always based in his musical ear and the confidence with the system.

# **Espacios**

#### Espacio I

No computer processes are involved. The highest octave and a half of the piano is muted with the help of a piece of thick tape or any other similar item that would mute the strings and provide a percussive sound rather than pitch. All durations are to be taken as rigorous as possible.



#### Espacio II

Is to be performed entirely inside the piano, the pianist should walk next to the piano so that he/she is facing the strings. The feedback system is already set inside the piano (including miniature microphones on the wrist of the performer) and the sustain pedal should remain open for the rest of the piece. The feedback system consists of 4 speakers facing down to the surface of the piano as shown in figure 1. These speakers are to feedback with two microphones placed on each of the performers wrists. The computer controls the feedback frequency while the volume and resonance of the strings, and of the overall instrument, depends on the hand's movements, figure 2. All the internal resonances are at the same time amplified through the PA of the concert hall.

With the use of an internal light the arm movements from the performer controlling the feedback, resonances and string vibrations, are emphasized, creating a 'sonic choreography'.

Figure I. Transducers



Figure 2. Feedback System



Figure 3. Espacio II with light

# Espacio III

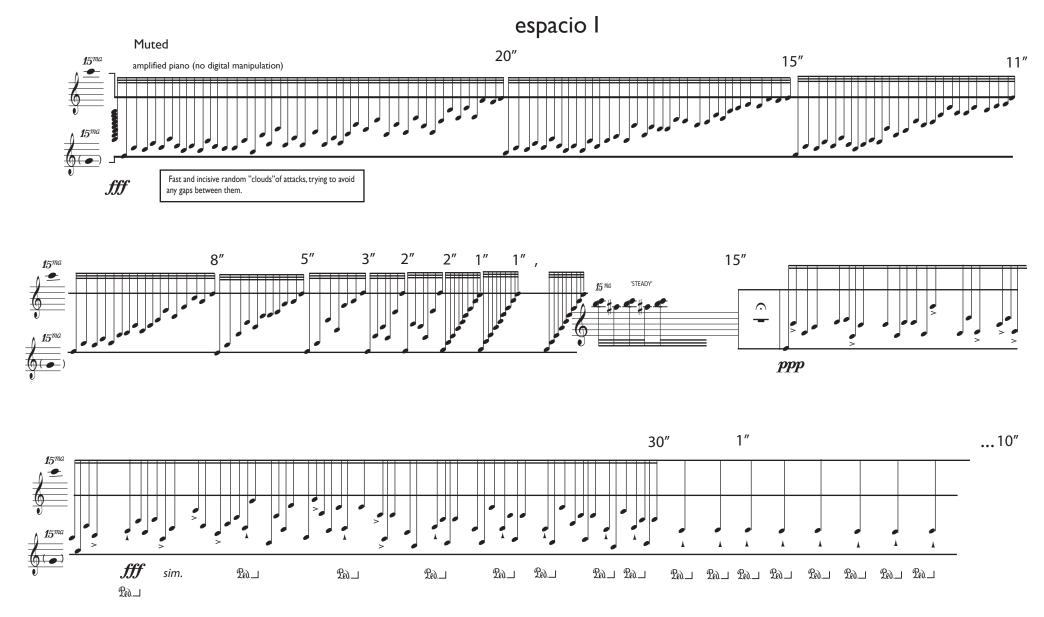
At the end of the previous 'space' the lid should be closed and the performer should walk in front of the computer, ideally placed on the stage opposite to the piano. The performer is to activate a series of presets on the computer program which intention is to excite different resonances and vibrations created inside of the, already closed, piano; but which sound is still controlled by the pianist (although without any contact and from a certain distance to the instrument) and projected over the concert hall.

to Sarah Nicolls

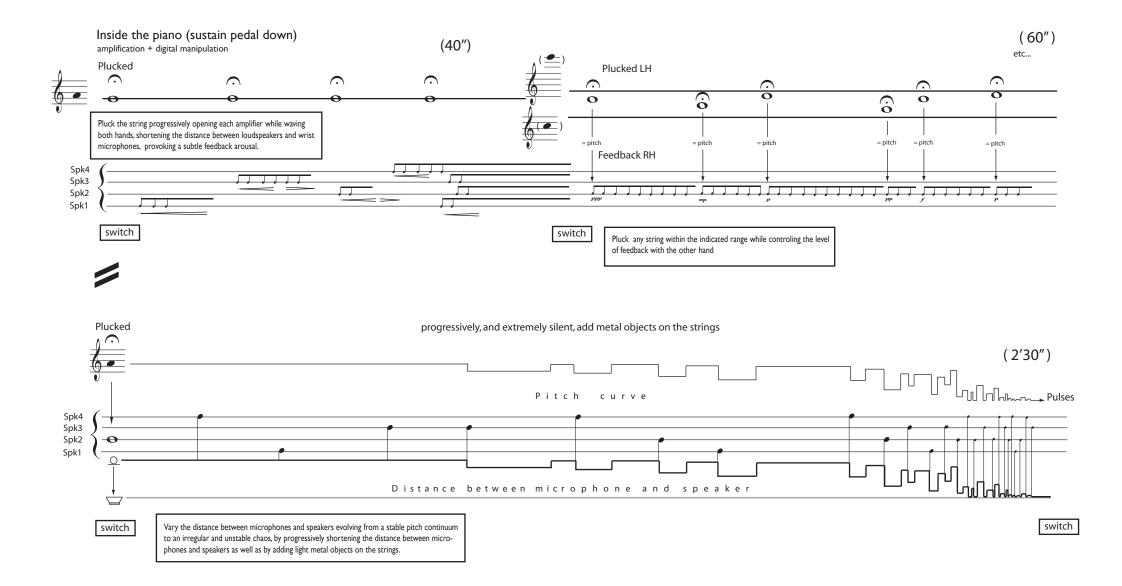
# espacios encordados

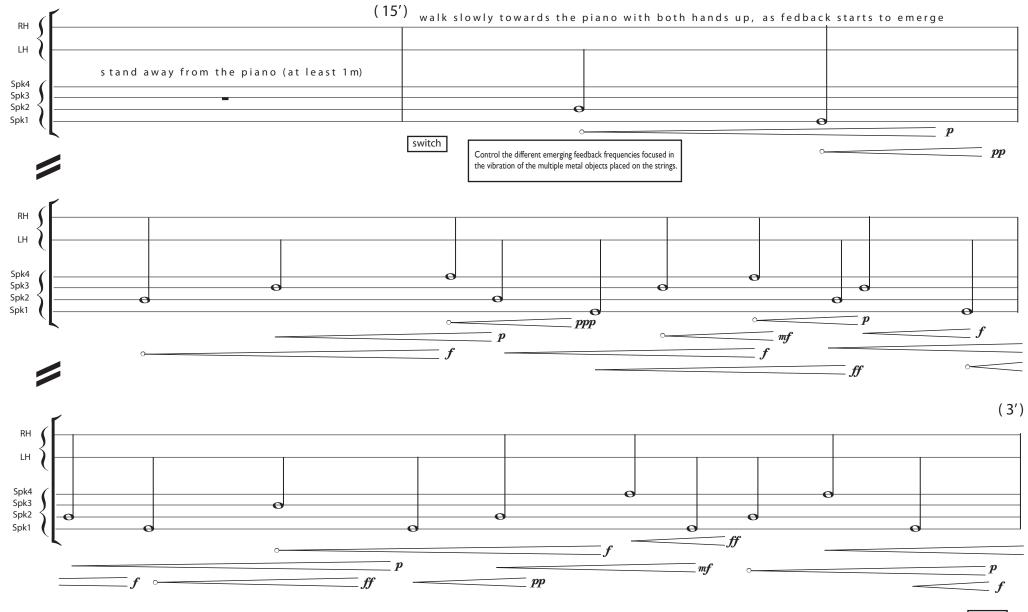
for feedbacked piano

Hugo Morales Murguia



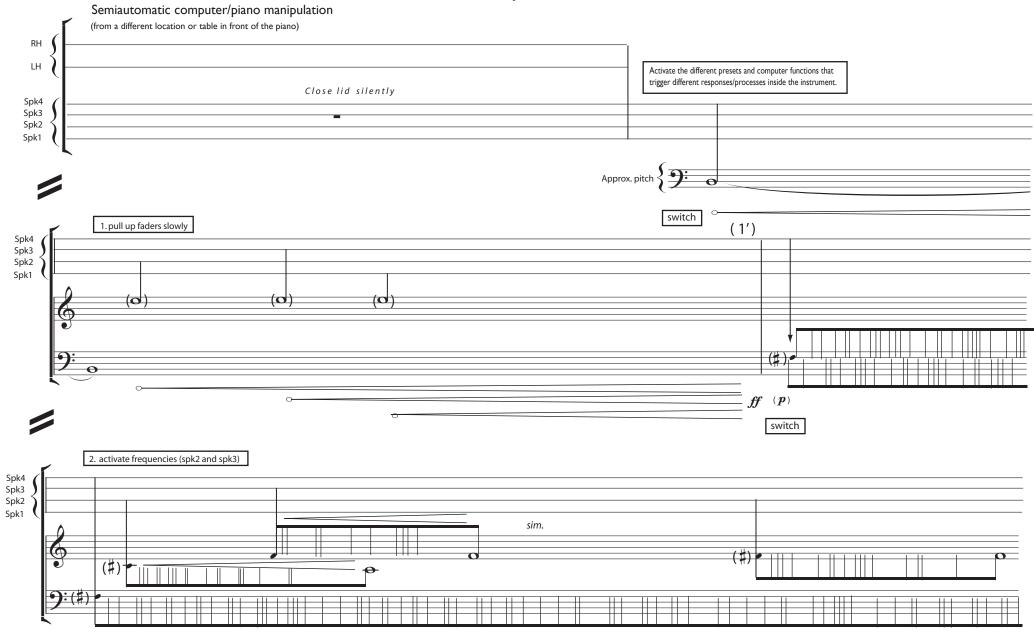
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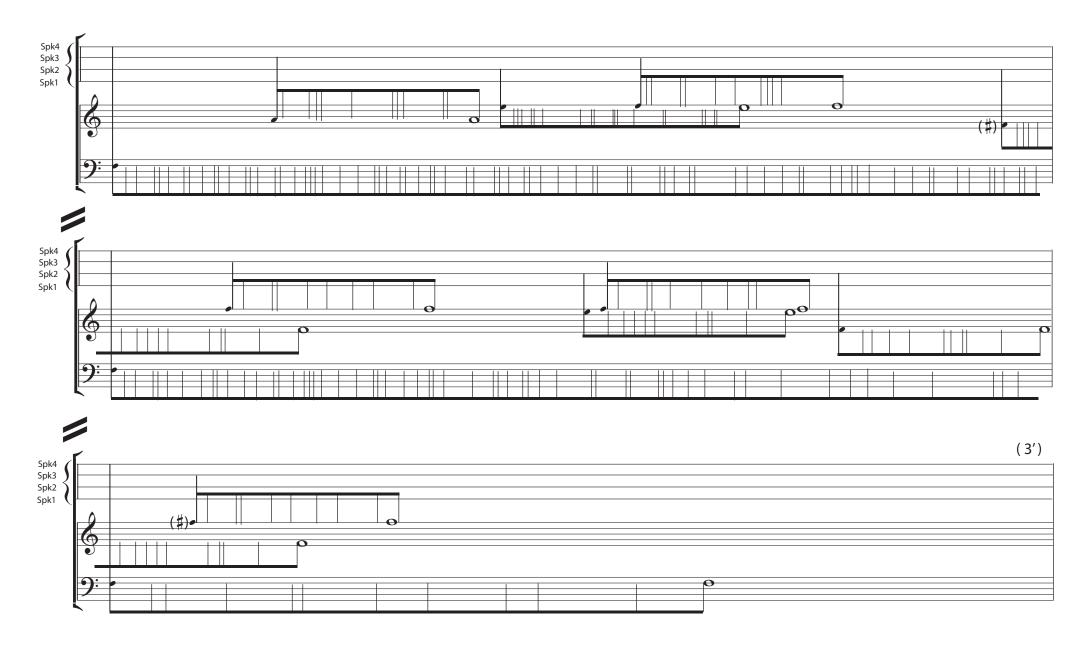


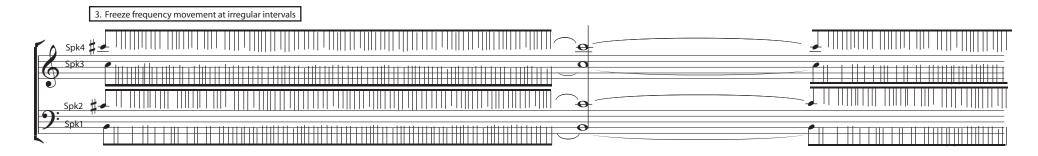


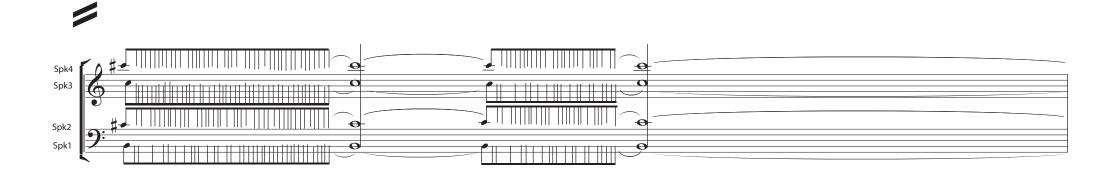
switch

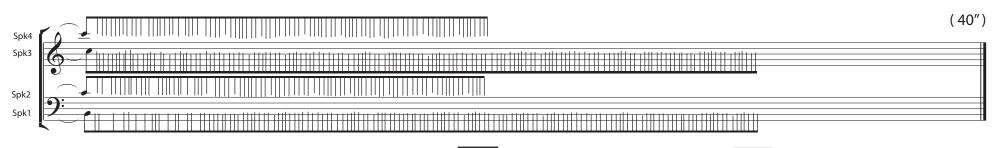
# espacio III











switch

switch