

Biological Control of
Music Systems

a philosophical enquiry

or... Submission
of Music Systems
to Biological Control

What will be covered

- ◆ Historical perspective
- ◆ Compositional notes
- ◆ My works to date
- ◆ This project

Biological Signals

- ◆ Luigi Galvani
- ◆ Emil Heinrich duBois Reymond
- ◆ René Laennec
- ◆ Richard Caton
- ◆ Hans Berger
- ◆ Jagadís Chandra Bose
- ◆ Adrian and Matthews

Cybernetics etc.

- ◆ Norbert Wiener
- ◆ Konrad Zuse
- ◆ Humberto Matarana
- ◆ Francisco Varela
- ◆ Stephen Wolfram

Aesthetic Precedents

- ◆ Alvin Lucier
- ◆ Manford Eaton
- ◆ Richard Teitelbaum
- ◆ David Rosenboom
- ◆ Atau Tanaka

Sound and Music

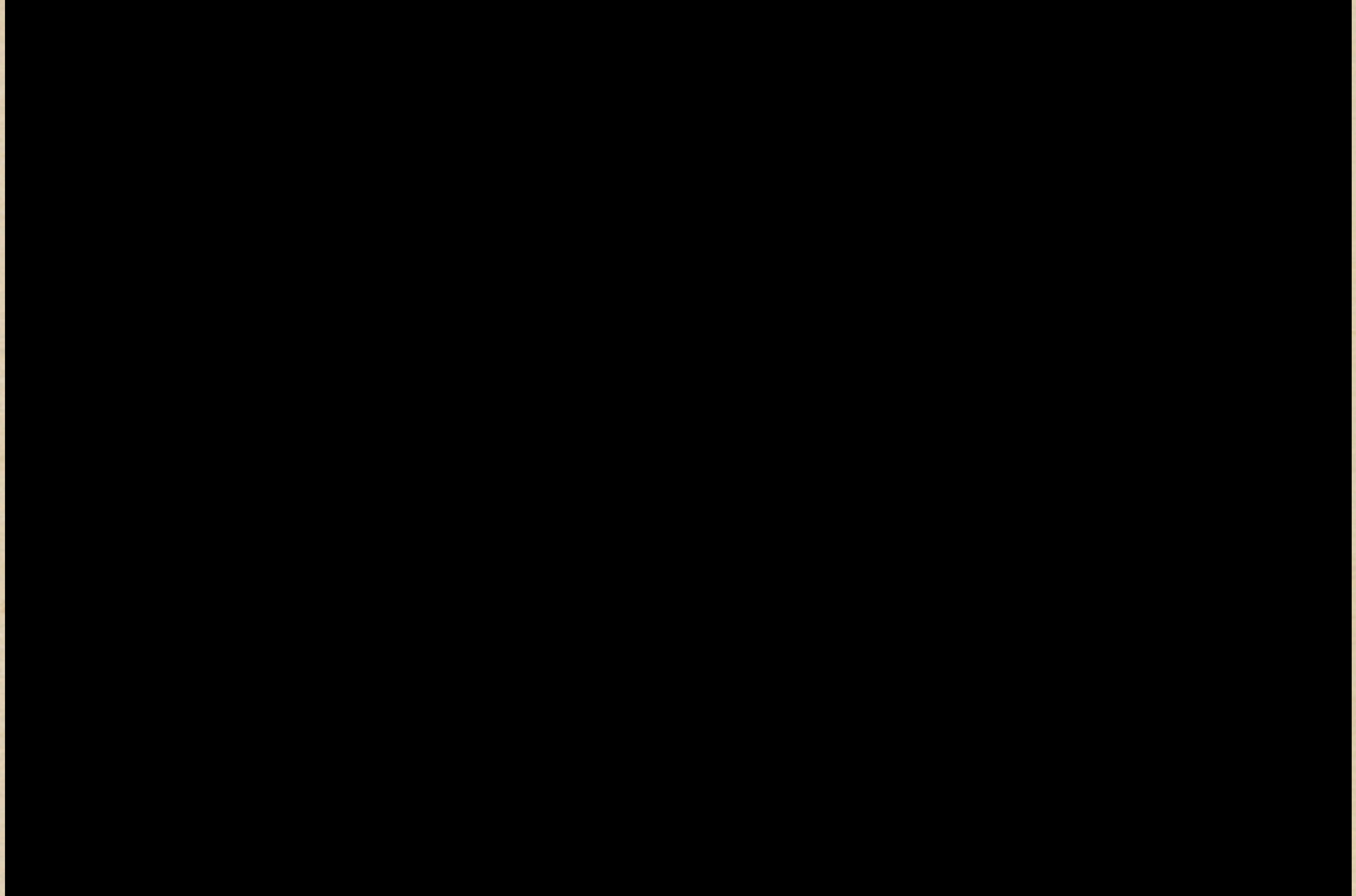
- ◆ Biological signals into sound or music?
- ◆ Sonification for Auditory Display
- ◆ Some sort of compositional system
- ◆ Tenney's Meta-Hodos is current source of inspiration

My Work

- ◆ Music for Solo Performer (Lucier)
- ◆ InterHarmonium
- ◆ Conversation
- ◆ Revelation
- ◆ Invocation
- ◆ Rock-Music

Music for Solo Performer

- ◆ Performed November 14, 1999
- ◆ Used “Automates Ki” system by Maxime Rioux to produce the sound
- ◆ Re-interpretation of famous piece by Alvin Lucier
- ◆ Faithfully followed original score never having actually heard a performance

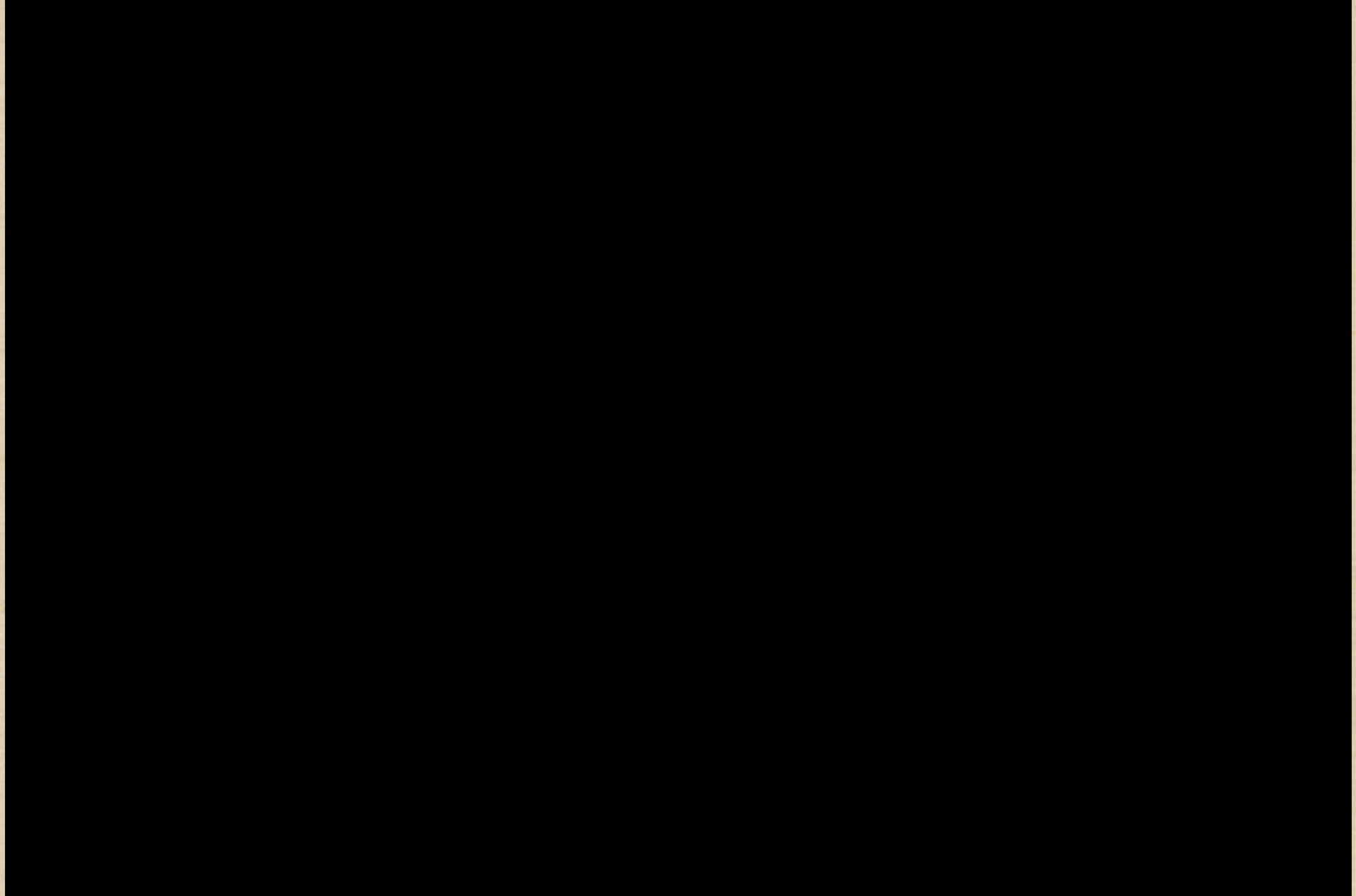


InterHarmonium

- ◆ Internet-enabled brainwave music system
- ◆ Attempted to enable a kind of neurological “telepresence”
- ◆ Subject of my MA thesis

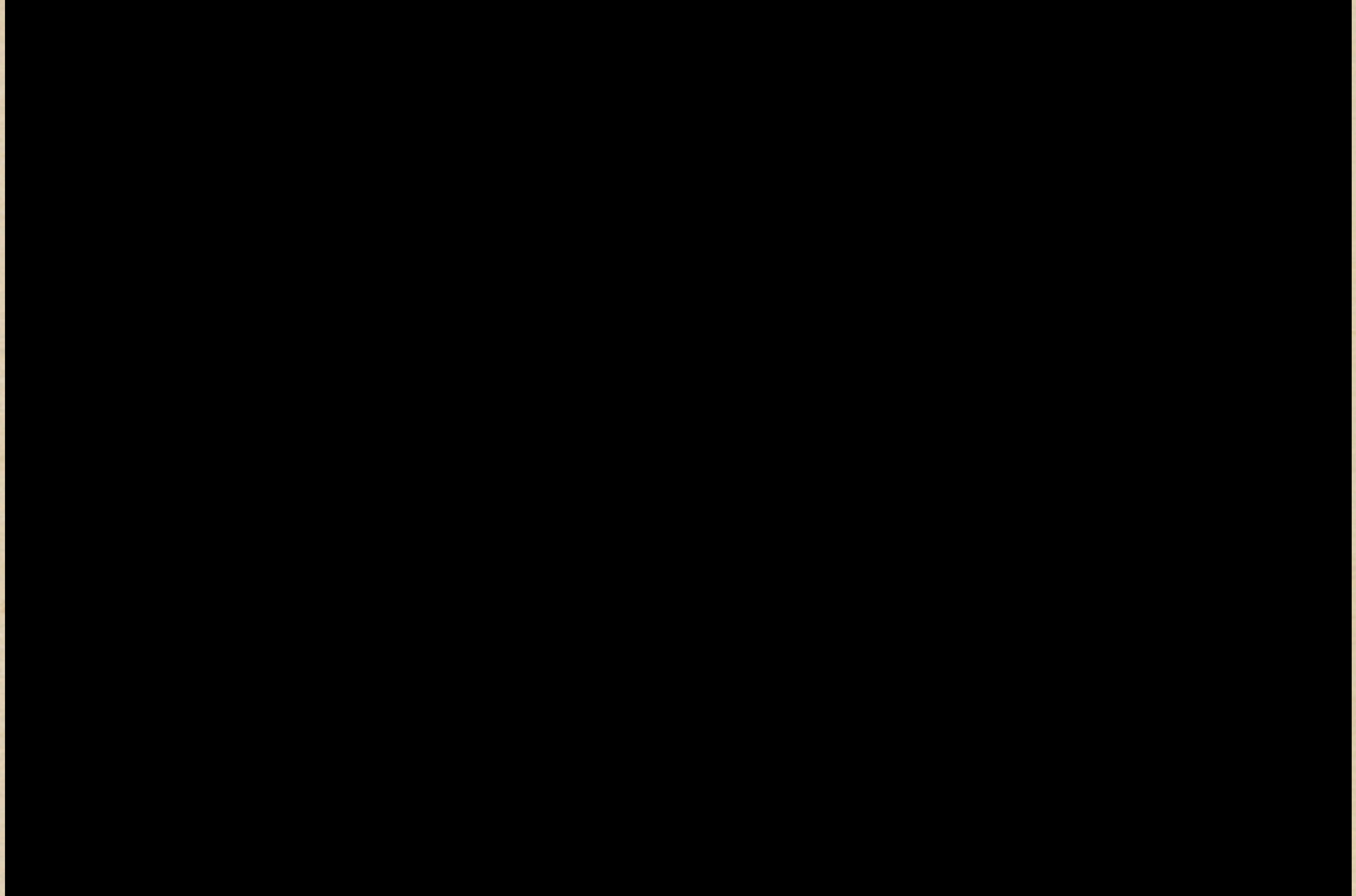
Conversation

- ◆ performed during NIME, May 2003
- ◆ Human EEG
- ◆ plant action potentials
- ◆ Datura Brugmansia and myself are in a Faraday cage during entire performance



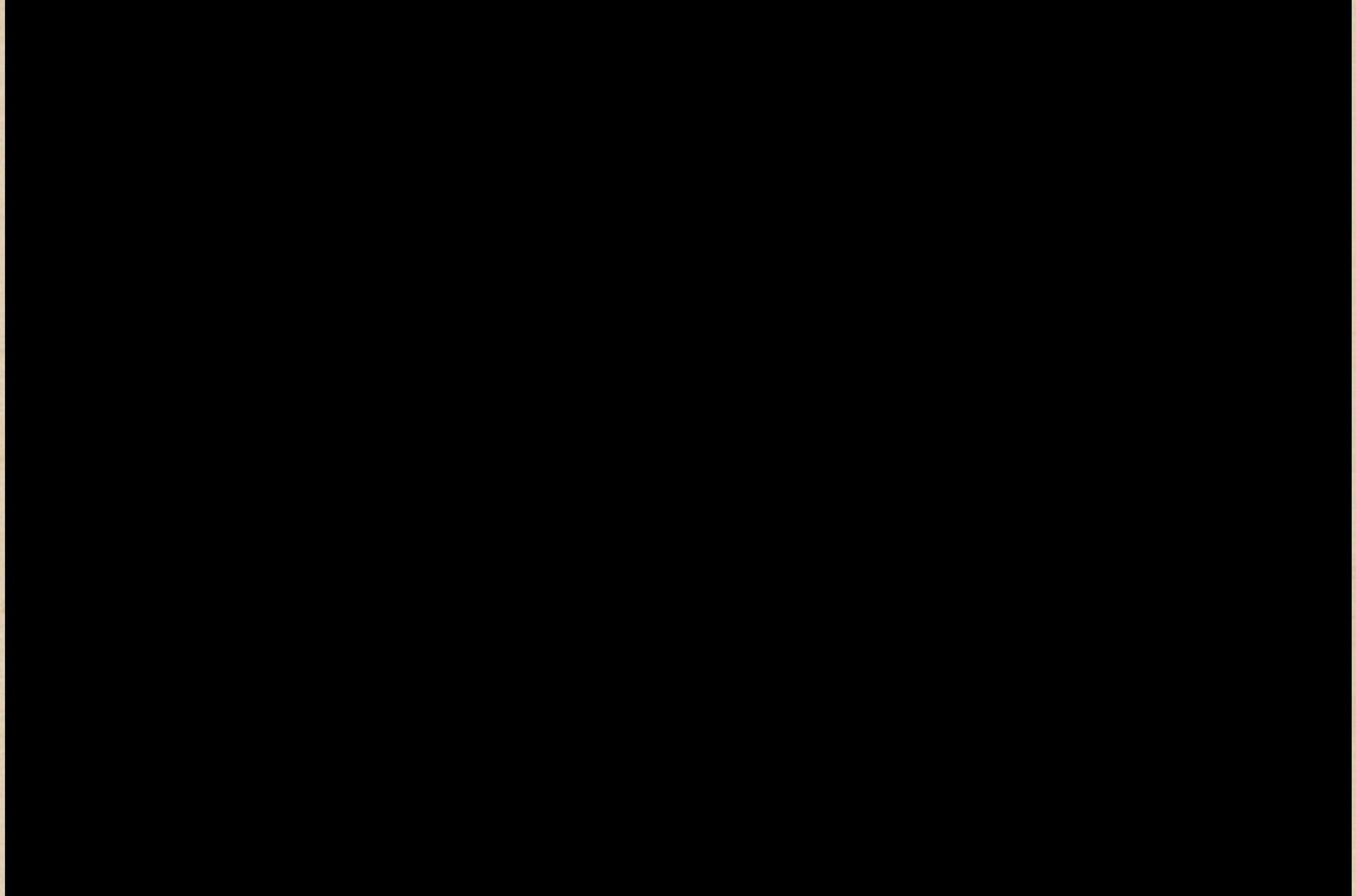
Revelation

- ◆ performed Feb. 2004 at Studio303
- ◆ human and common house plant
- ◆ Physical modelling sound synthesis
- ◆ Video synthesis



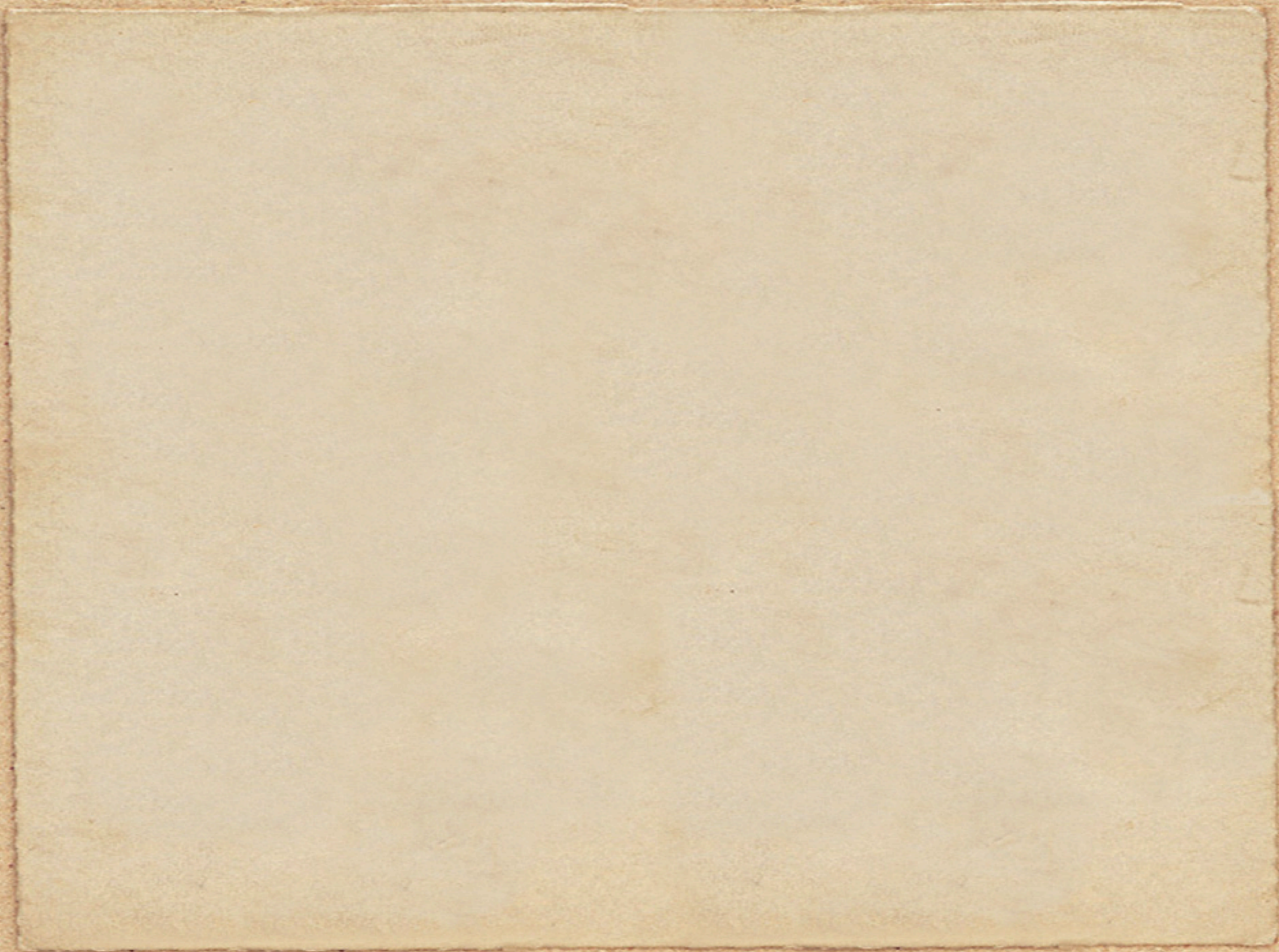
Invocation

- ◆ Performed February 2006 in TheUpgrade!
- ◆ Human multi-band EEG
- ◆ 8-channel sound reproduction
- ◆ Hybrid physical/source-filter model of Tibetan/Tuvan multiphonic singing



Rock-Music

- ◆ inspired by “Response in the Living and Non-Living” Jagadis Chandra Bose
- ◆ magnetic rocks (magnetite) arranged in a Faraday enclosure
- ◆ recorded 8 channels over 18 hours
- ◆ time-compressed and down-mixed to 7 minutes and stereo



Project

- ◆ “Bio-Music” platform
- ◆ “Biological Control of Music Systems”

“Bio-Music” platform

- ◆ Open-Source Hardware and Software platform for the exploitation of biological signals as generative sources in dynamical, real-time musical and artistic creation systems

Biological Control of Music Systems

- ◆ exploration of the philosophical, historical, scientific, medical, aesthetic implications of using biological signals to create music, art, science, medicine
- ◆ implicit critique of science, medicine, aesthetics

Questions

- ◆ Thanks for your attention