



Sound, Space, & Ambient Music

## Today

**Brief look at how sound interacts with physical spaces.**

**the history of background music**

**The work and legacy of Brian Eno (possible Bowie tangent)**

**Midterm & Project 2**

## **MIDTERM EXAM**

**10.18 during class (11 - 11:50am)**

**test designed to take 30-40 minutes**

**alternate testing location (11 - 12:40)**

**be sure to bring a pencil**

**part of next monday's class will be reserved for midterm questions**

## Multiple Choice

- **People/Groups** (examples: John Cage, Delia Derbyshire, The Beach Boys, Wendy Carlos)
- **Technologies and Instruments** (examples: Theremin, Hammond Organ, Minimoog, Phonograph)
- **Terms and Concepts** (examples: frequency, additive synthesis, ambient music, l'Objet Sonore)
- **Listening** (Artist/Group, technological processes / genre)



## Part I: Listening

You will hear 8 excerpts. Identify the early electronic instrument featured in each one.

- a. Theremin
- b. Ondes Martenot
- c. Electric Guitar
- d. Moog Modular
- e. Hammond Organ

- 1) fill in correct letter from list above
- 2) fill in correct letter from list above
- 3) fill in correct letter from list above
- 4) fill in correct letter from list above
- 5) fill in correct letter from list above

## Part II: Multiple Choice

- 1) Around the turn of the 20<sup>th</sup> Century, inventor Thaddeus Cahill premiered his massive new electronic instrument, the \_\_\_\_\_:
- a. Theremin
  - b. Trautonium
  - c. Hammond Organ
  - d. Telharmonium
  - e. Ondes Martenot





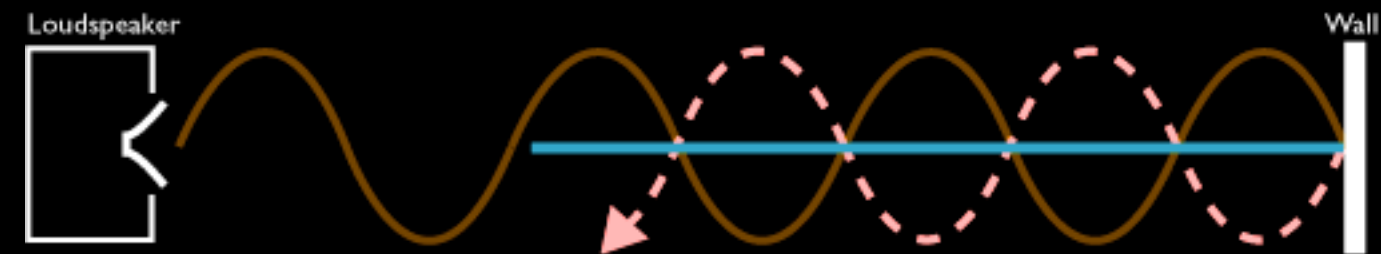
sound & space

# Room Resonance

## Destructive vs Constructive Interference

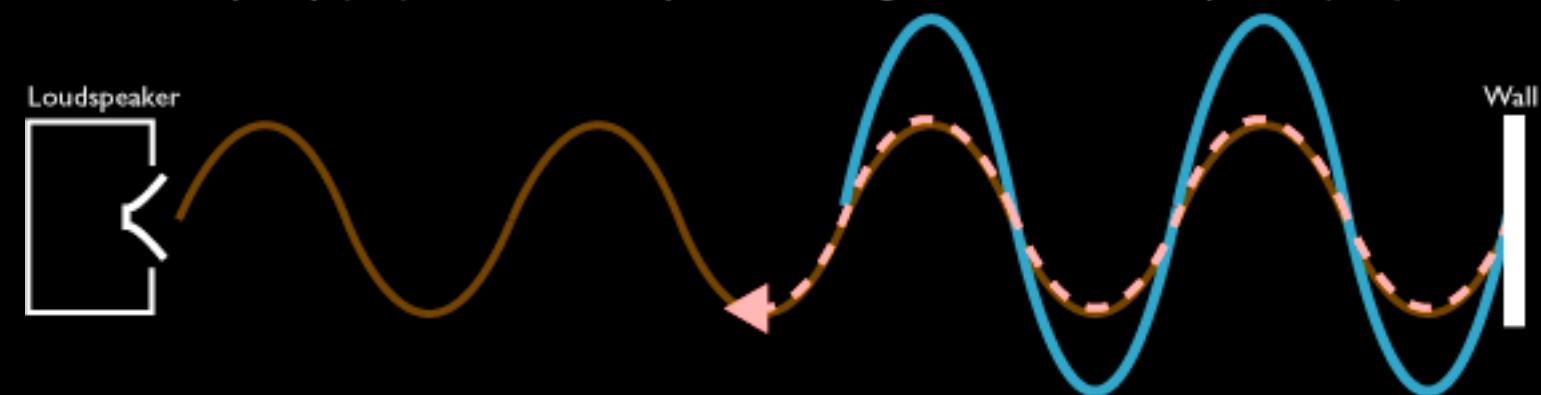
**Room modes. Standing waves out-of-phase cancellation.**

Reflected frequency (red) reflects back out-of phase, resulting in cancellation (blue).



**Room modes. Standing waves combine in-phase.**

Reflected frequency (red) reflects back in-phase, resulting in an increase in amplitude (blue).





# Room Acoustics

**DIFFRACTION** - Long waves will bend around (or move through) objects.

**ABSORPTION <---> REFLECTION**

Hard surfaces reflect, soft surfaces absorb.

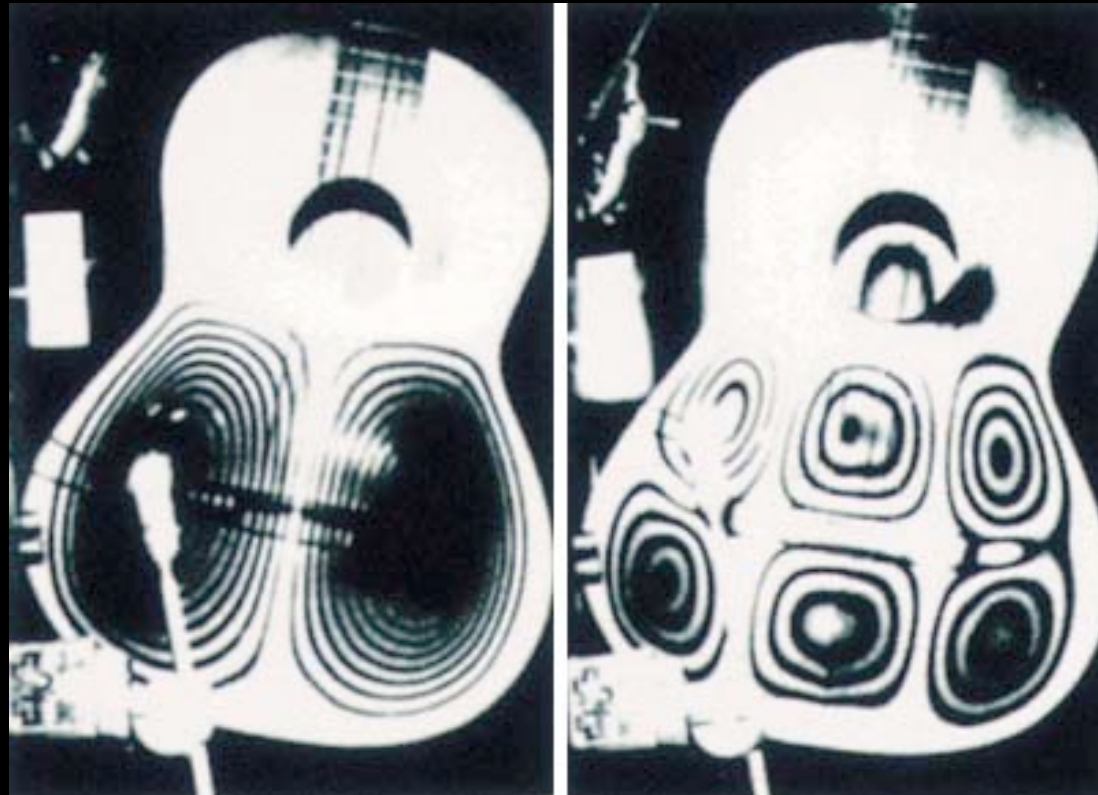
Short wavelengths become trapped in soft material - carpets, drapes, etc.

Reflected sound is **REVERBERATION**, a series of echoes, and reverb time depends on the size and material of the space



**The Dream House**  
**La Monte Young**

# Resonance

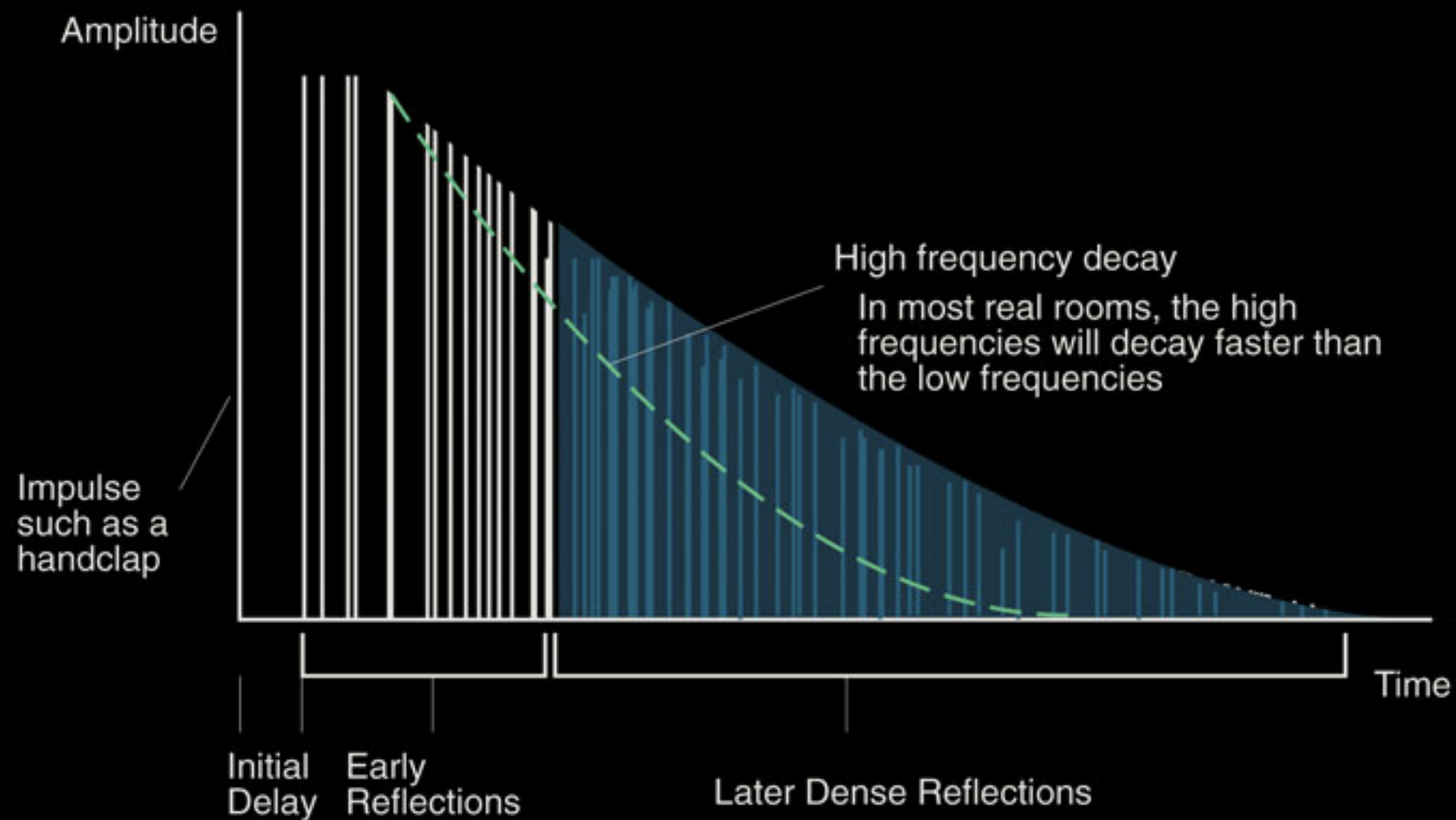


resonating sound waves within a guitar

# Reverberation

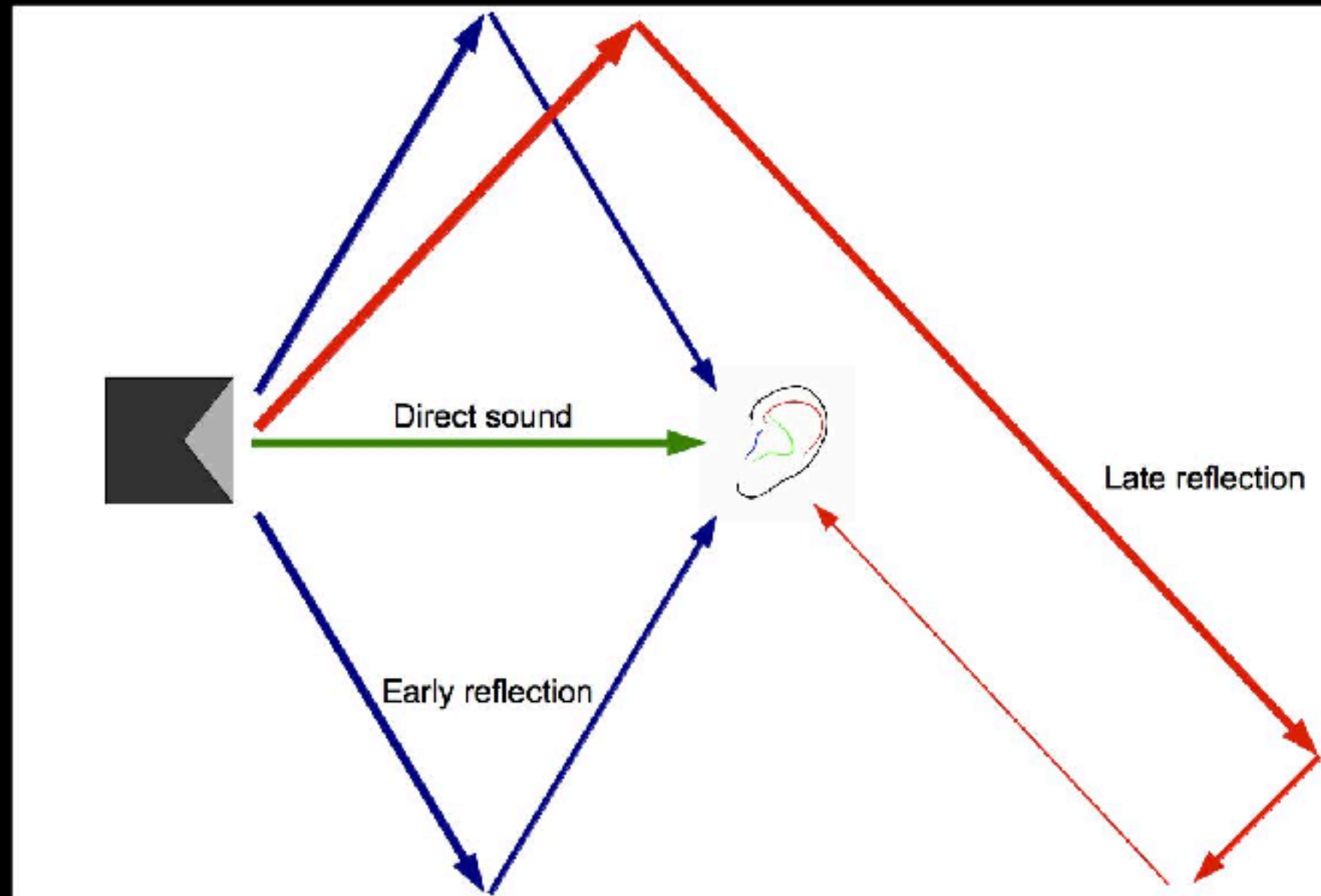
**Natural** - reflections caused by the resonant qualities of a space

**Artificial** - simulated digitally or through an analog system





# Reflections and Reverberation



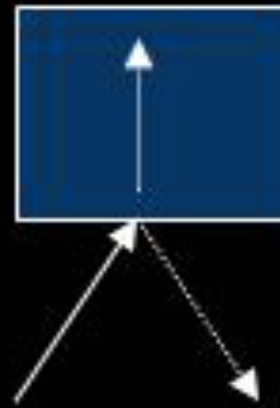
# Acoustic Treatment for Room Resonance



Reflection:

Most of sound is reflected which is almost as loud as incoming sound

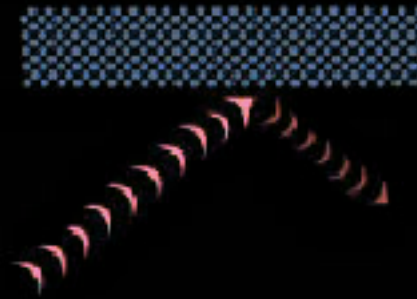
**Reflection**



Absorption:

Absorbing power is determined by material used

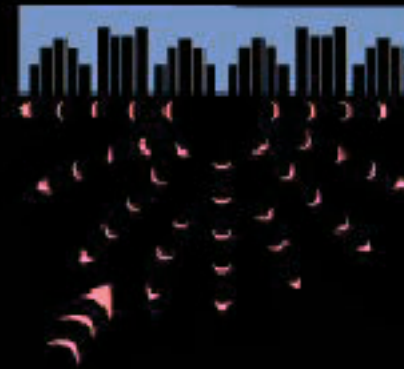
**Absorption**



Diffusion:

Scatters sound depending on desired effect

**Diffusion**













# I AM SITTING IN A ROOM (1970)

ALVIN LUCIER



I am sitting in a room different from the one you are in now. I am recording the sound of my speaking voice and I am going to play it back into the room again and again until the resonant frequencies of the room reinforce themselves so that any semblance of my speech, with perhaps the exception of rhythm, is destroyed. What you will hear, then, are the natural resonant frequencies of the room articulated by speech. I regard this activity not so much as a demonstration of a physical fact, but more as a way to smooth out any irregularities my speech might have.



# **a brief history of background music**

**{ Furniture Music, Muzak, ambient music, & current music that draws on ambient traditions }**



# ERIK SATIE

Composer (but preferred phonometrician)

Dadaist

developed “Furniture Music”

Listen: Gymnopédie No.1 (1888)

without a rigid time structure — free time.





**m u z a k**

## **MUZAK LLC**

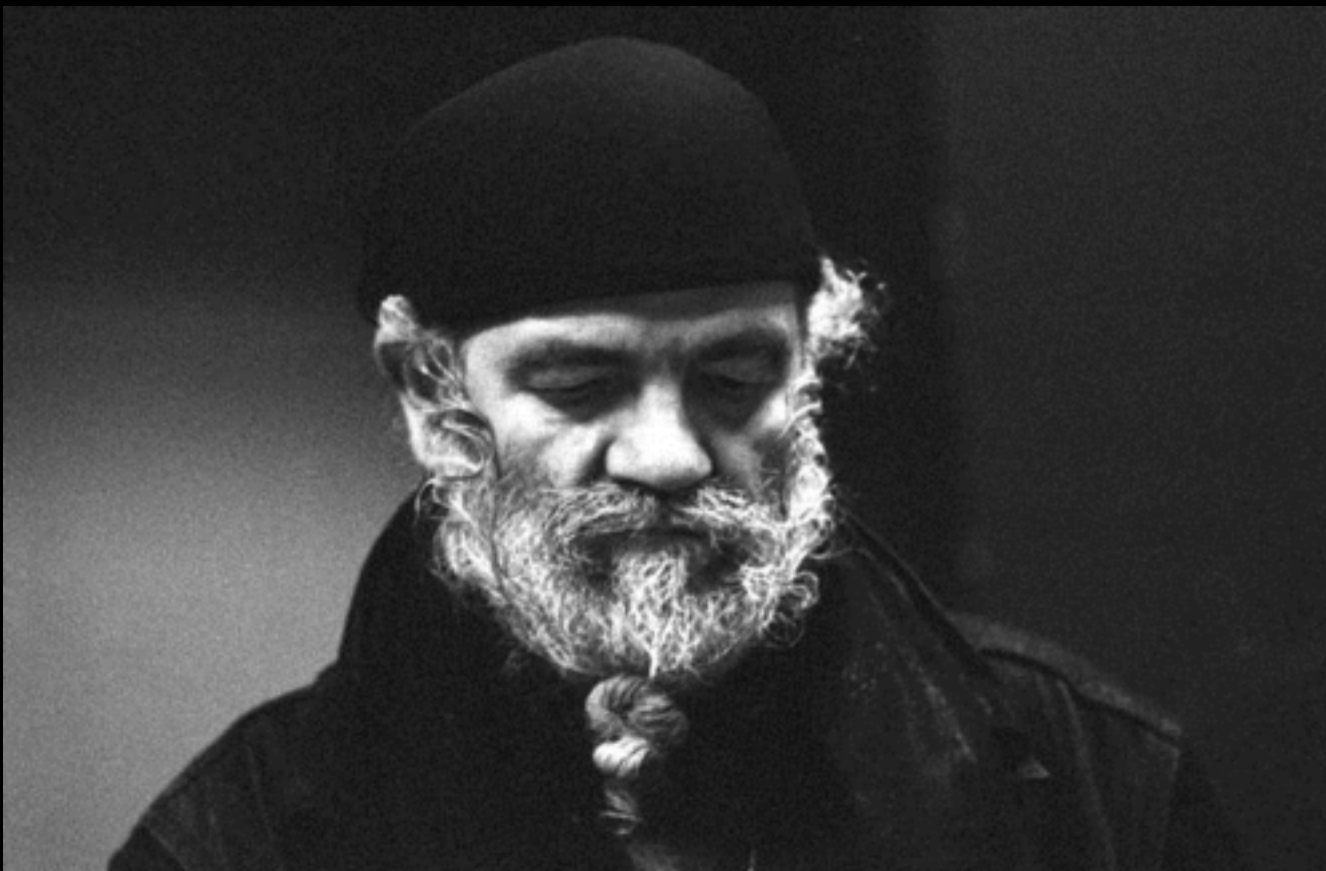
A company that created, arranged and sold background music



## JOHN CAGE

4'33"

"[it is] more possible to live affirmatively if you find the sound of the environment beautiful."



## LA MONTE YOUNG

Dreamhouse

Standing waves and static drone textures



## **R MURRAY SCHAFER**

Acoustic Ecology & Soundscapes



## **PAULINE OLIVEROS**

“deep listening” and sonic awareness





# WENDY CARLOS

Sonic Seasonings

Mixed field recordings with modular synthesizers to create one of the first undoubtedly 'ambient' records.



# LAURIE SPIEGEL

Early experiments with computers driving synthesizers, creating long works focus on texture





**BRIAN ENO**



**BRIAN ENO**  
ROXY MUSIC

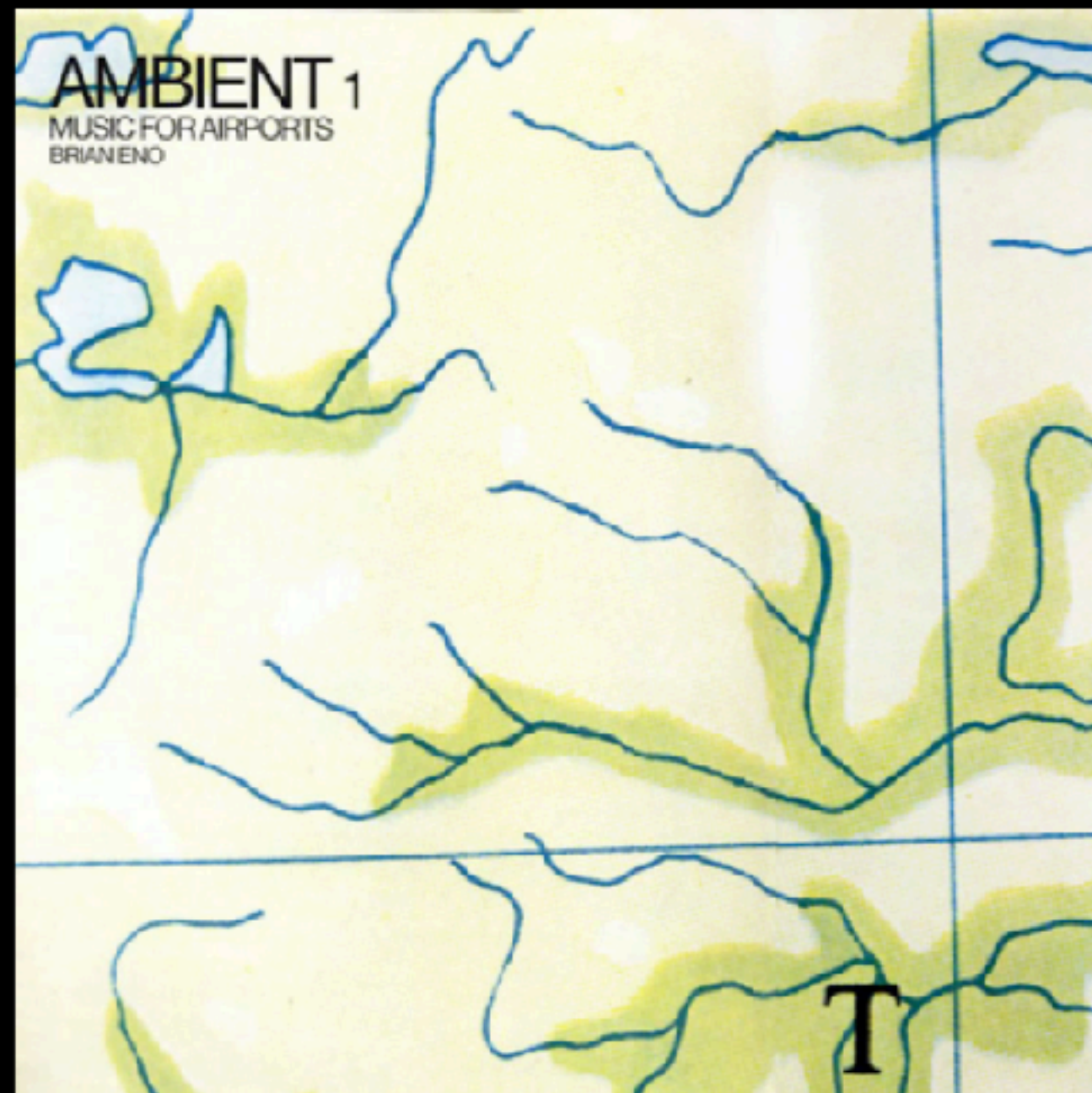




BRIAN ENO DISCREET MUSIC



AMBIENT 1  
MUSIC FOR AIRPORTS  
BRIAN ENO



## Eno's Ideas about Ambient Music

Eno contrasts canned music (or “muzak”), which tries to cover up surrounding sounds, with ambient music, which is intended to enhance the sounds of the environment.

### Muzak

Blankets with sound, covers up the space

Strips away all sense of doubt and uncertainty

Brightens the environment, stimulating

**VS.**

### Ambient Music

Invites you into the space, incorporates the space

Mysterious, uncertain

Induces calm and a space to think



# OBLIQUE STRATEGIES

Influenced by Cage, Eno became interested in “Chance Operations”

**Oblique Strategies** are aphorisms on cards that are pulled up at random during recording sessions to "check the path of least resistance in the studio."



## Current Ambient Music

Vangelis (film composer) and Jean-Michel Jarre (pop composer) were two of the most and prolific ambient composers of the 80s and 90s.

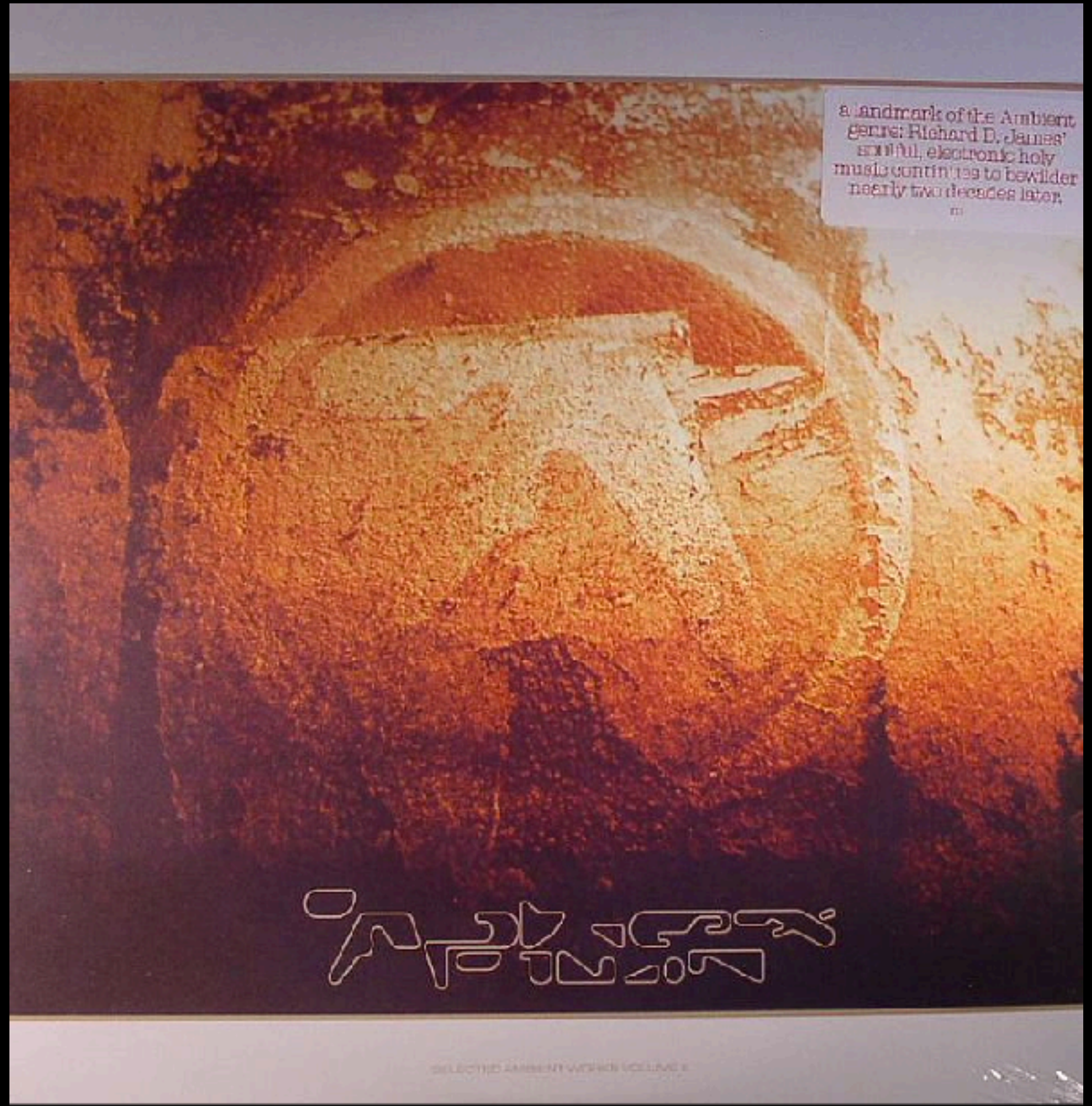
Many genres incorporate the philosophy and techniques of earlier ambient music: Industrial, Drone, Ambient Dub, Space Music, chill-out, mellow dub, down-tempo, new-age music, meditation music.

### Later lectures

Klaus Schulze and Tangerine Dream brought ambient ideas to the german scene in the 70s

Aphex Twin, Tim Hecker, Noveler, Ryuichi Sakamoto, Caroline Park, Julia Holter, Juilianna Barwick, Fenez, etc. are all current composers working with or near ambient ideas.









# RYUICHI SAKAMOTO

Began his music career with the Yellow Magic Orchestra

Composes music for films and games, and collaborates as a pianist and keyboardist with other composers and engineers

excerpt from Duoon, off the album Vrioon, collaboration with Alva Noto





# NOVELLER (SARAH LIPSTATE)

Guitar-based Ambient/Drone/Noise/etc

Performs live using various pedals effects, delays and reverb, mic's the amp.

Listen: ***St. Powers*** from the album Paint on the Shadows







# CAROLINE PARK

Ambient process music combining automated systems with manual control, steering the system

Custom software built in Max/MSP

Listen: Octavluv (excerpt)

# TIM HECKER

Digital drone/ambient/noise

Performs live with a laptop

“First and foremost, I’m a studio musician. My main skill is making studio artifacts—recordings. Having said that, I enjoy playing live, and I do with great interest and intensity. It’s a totally different thing for me than making CDs.”

Listen: ***Hatred of Music*** from the album Ravedeath, 1972

