

Workshop

ILLUSONIC

VR Audio: B-Format Processing

AES 145th Convention, New York
October 18th, 2018

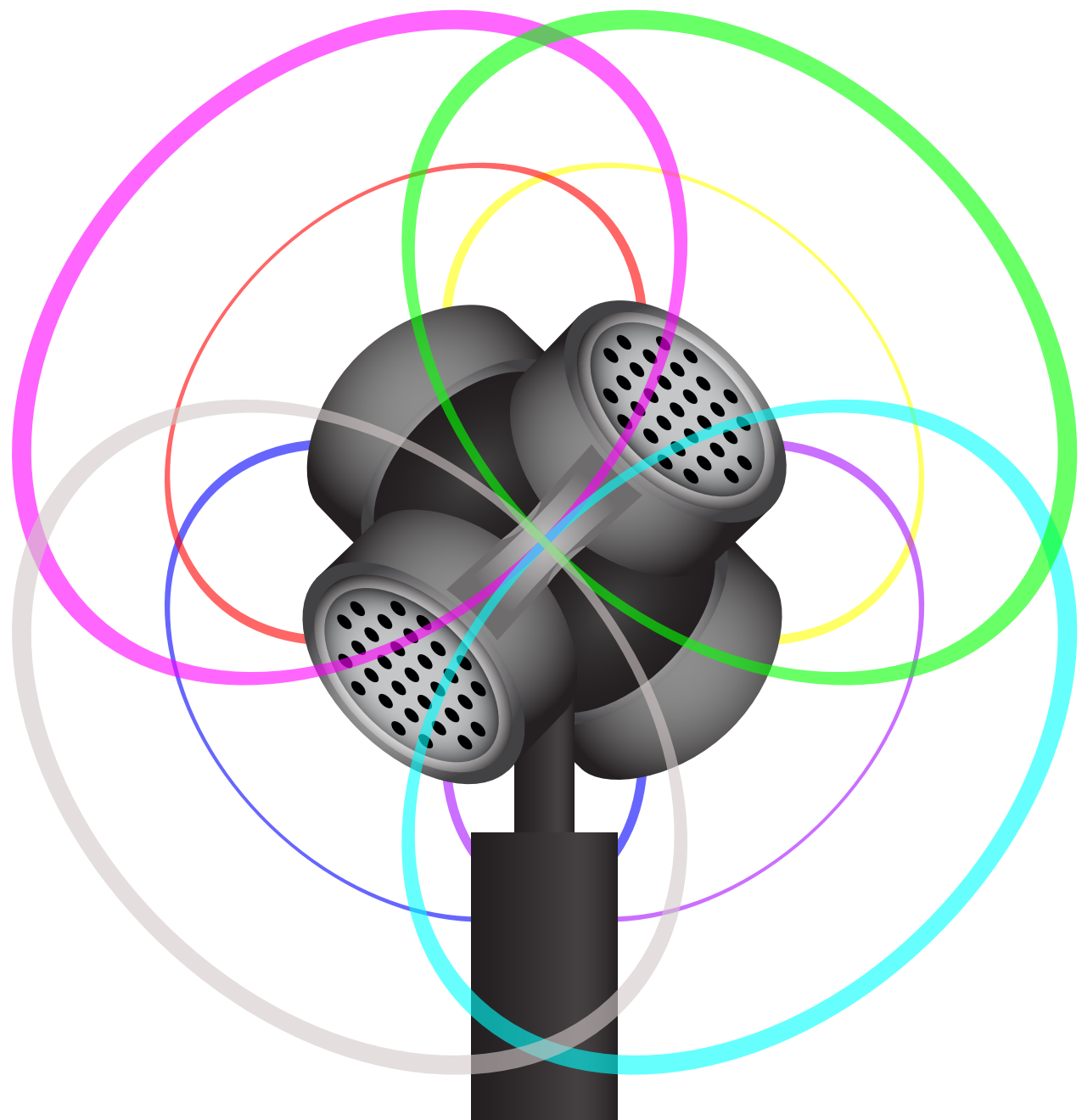
Chair:

Christof Faller, Illusonic

Panelists:

Svein Berge, HARPEX

Brian Glasscock, Sennheiser



Intro: Soundfield Microphone and B-Format

Christof Faller, Illusonic

High Angular Resolution Planewave Expansion (HARPEX)

Svein Berge, HARPEX

VR Audio Workflow and Why B-Format Has Become the Format of Choice

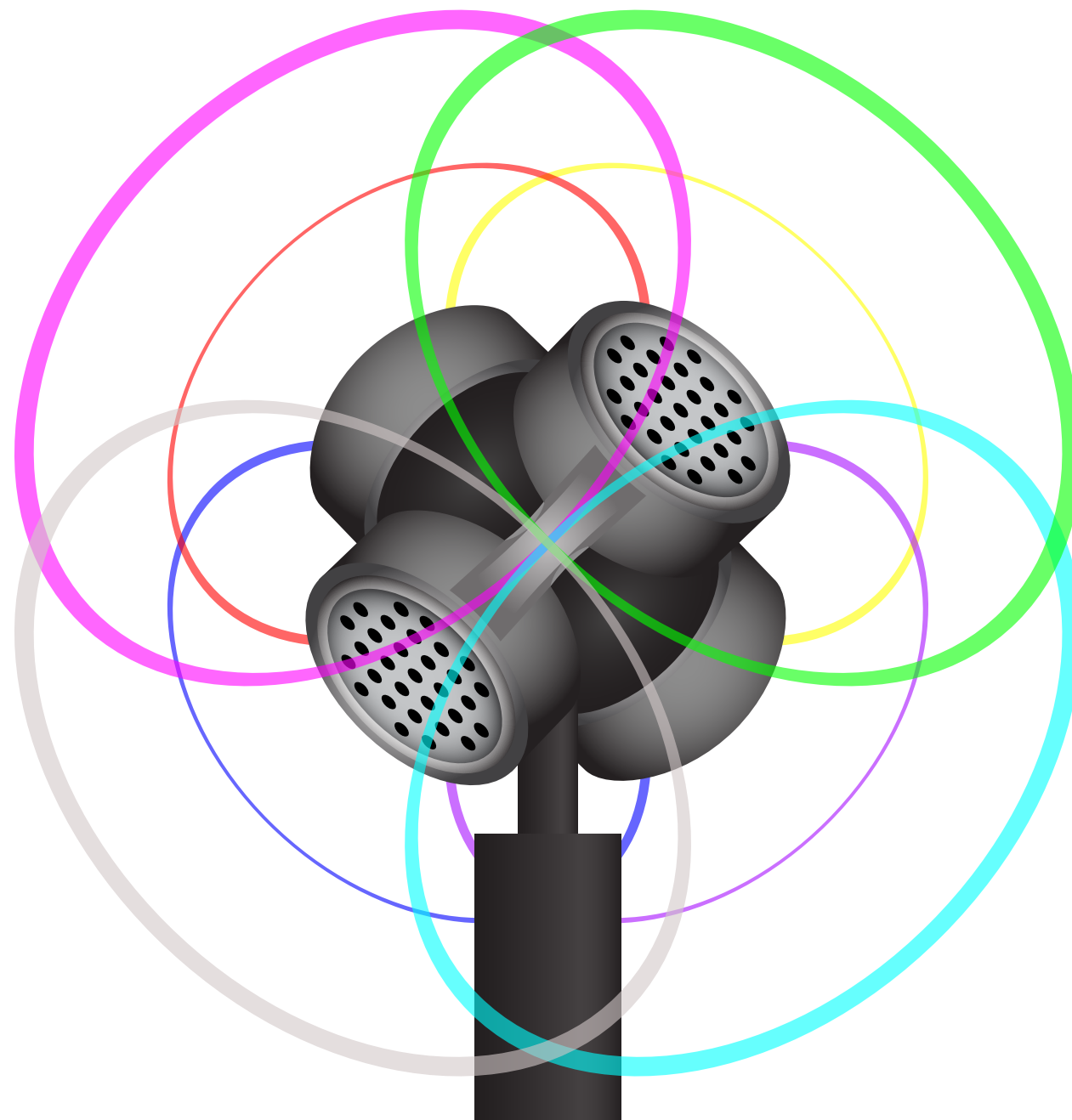
Brian Glasscock, Sennheiser

Discussion

Soundfield Microphone and B-Format

ILLUSONIC

Christof Faller, Illusonic



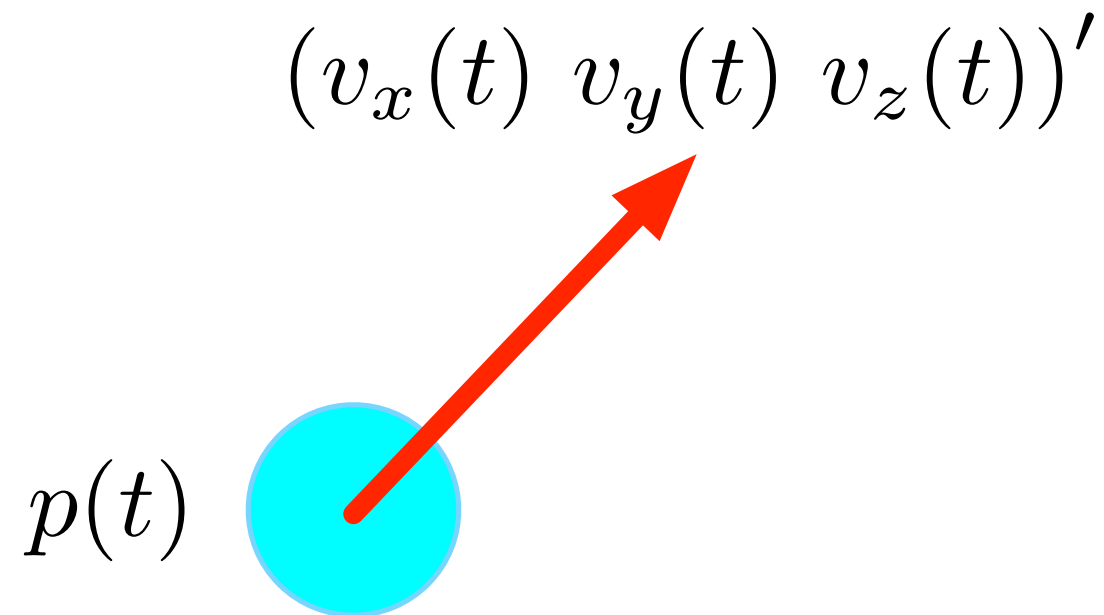
Introduction to

- Soundfield Microphone**
- A-Format, B-Format, Decoding**

... as its name suggests, the Soundfield

Microphone measures the sound field ...

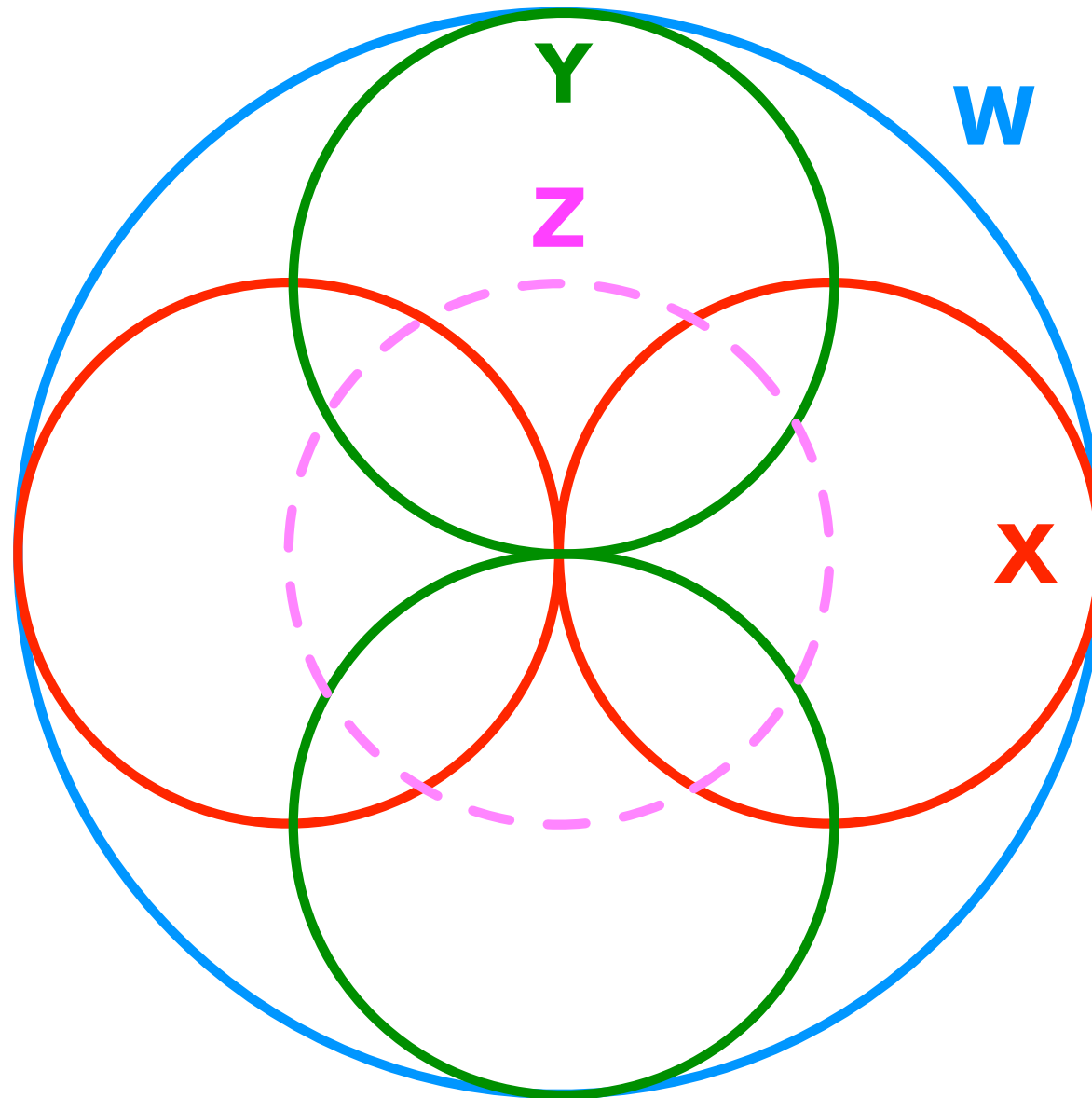
That is, it measures in one point sound pressure and particle velocity vector



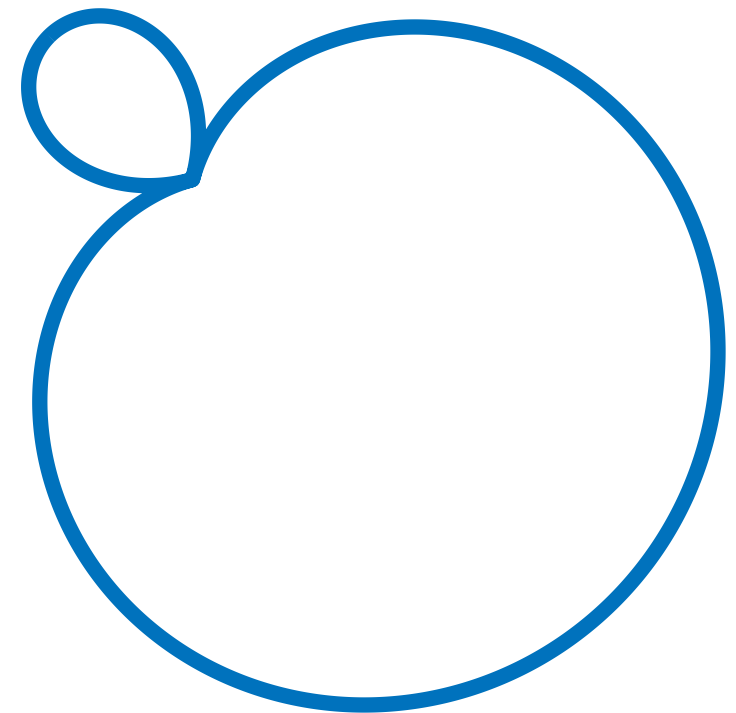
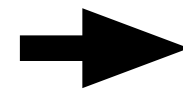
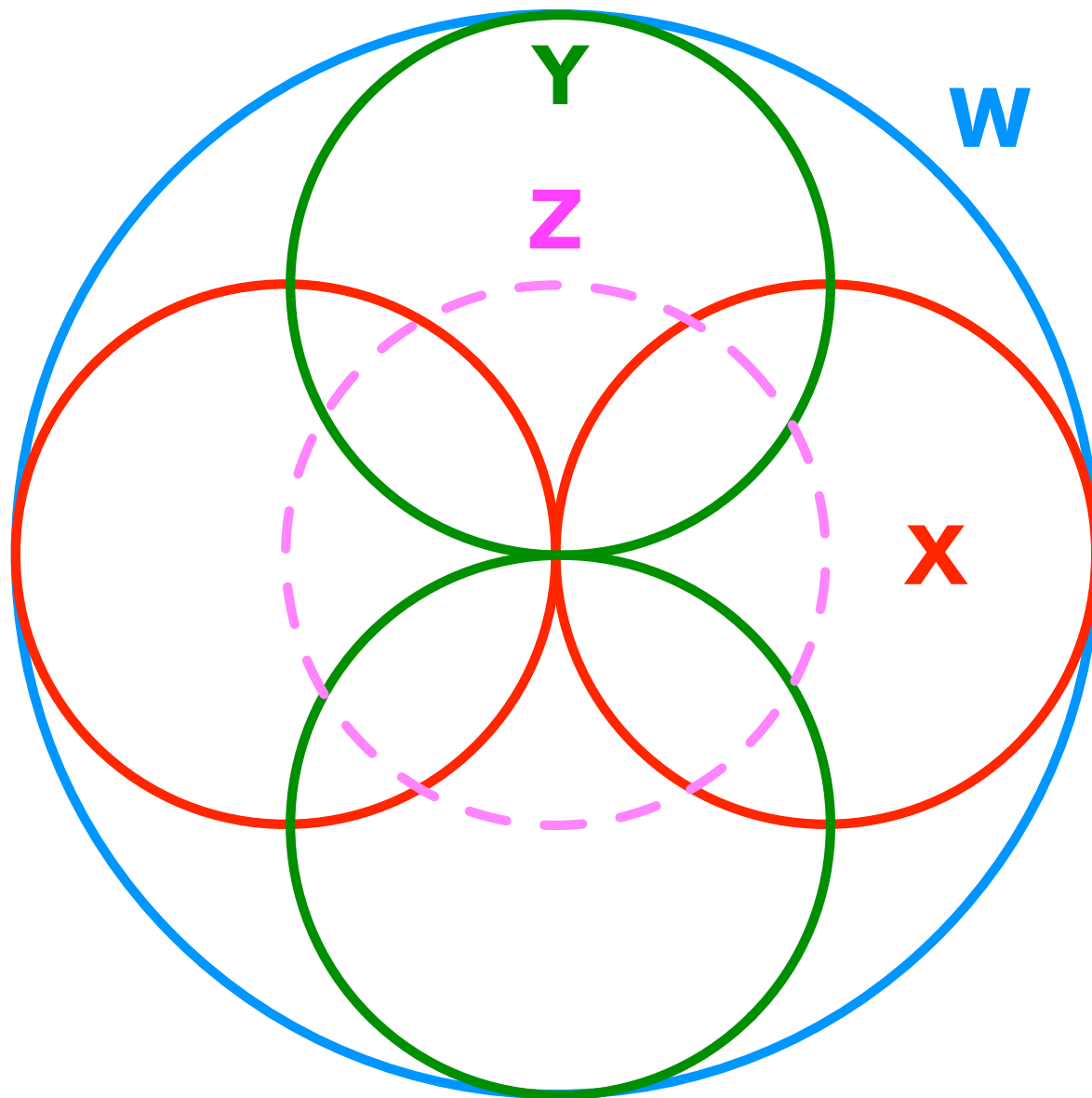
These signals are denoted W, X, Y, Z

... theoretically one could measure W, X, Y, Z

with 4 microphones located at the same position ...

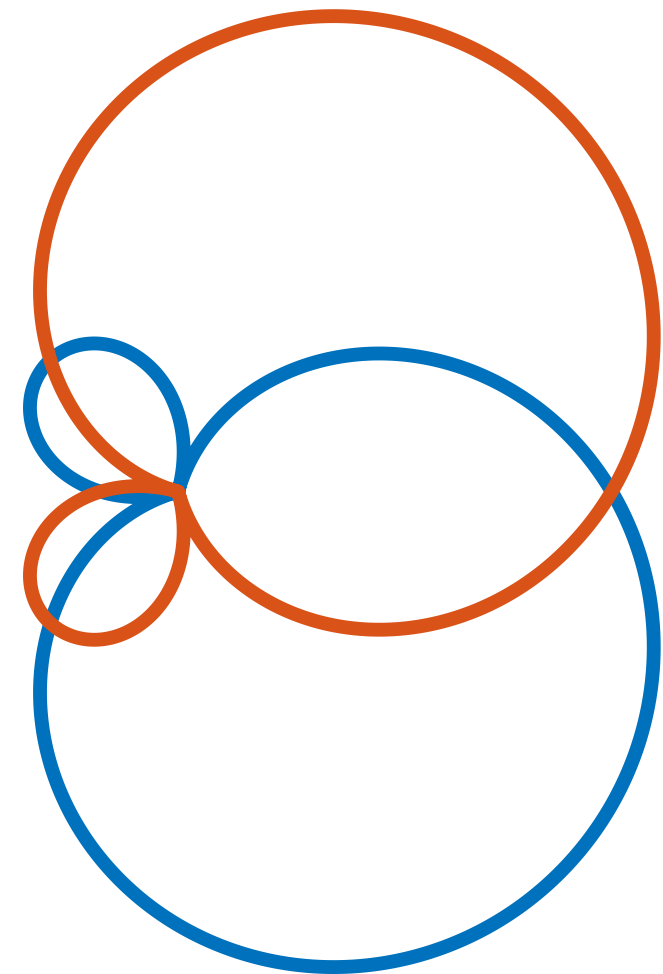
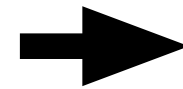
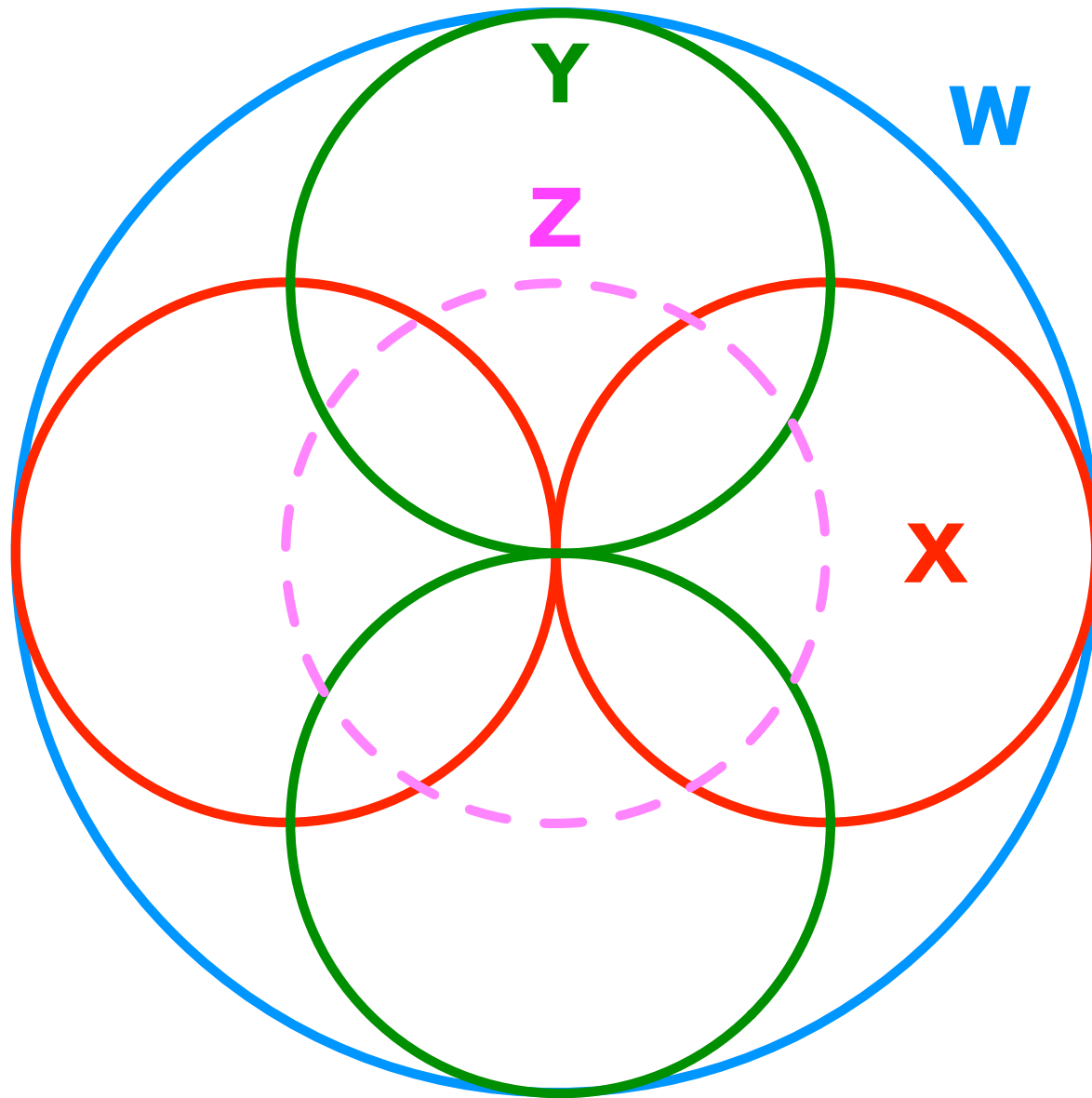


... why would one want to do this ?



**Any first order pattern
Any 3D look direction**

... this opens up many applications!

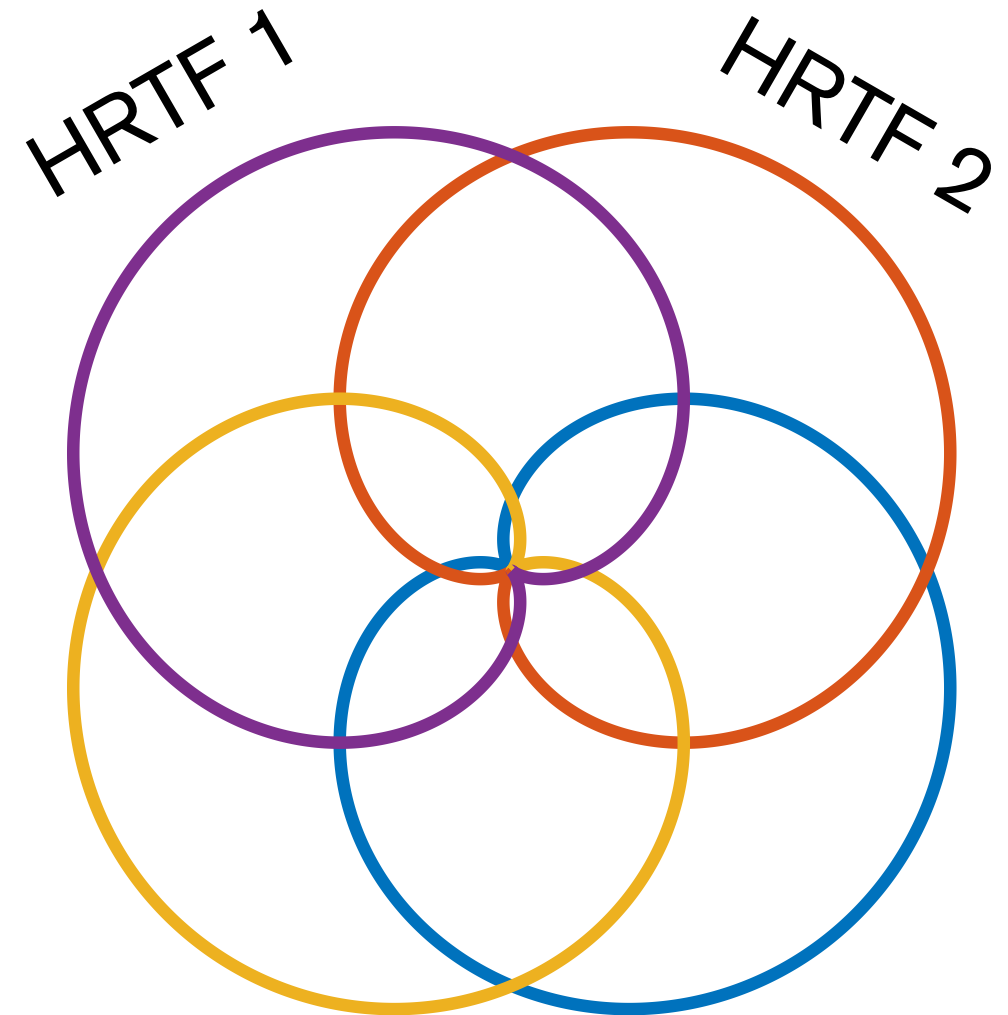
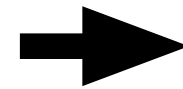
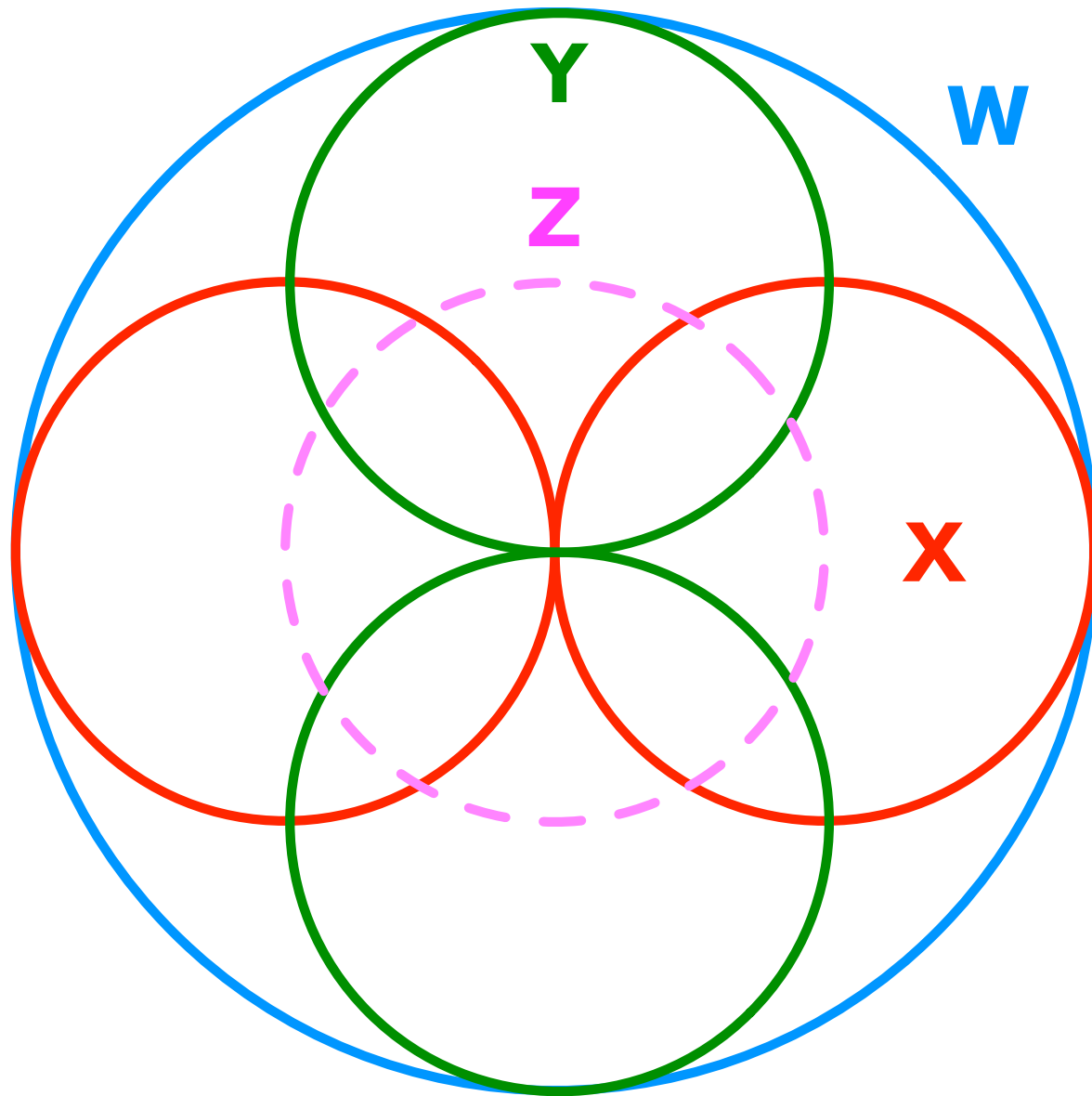


**Stereo & Surround
Adaptive Look Direction**

Soundfield Mikrofone

ILLUSONIC

... this opens up many applications!

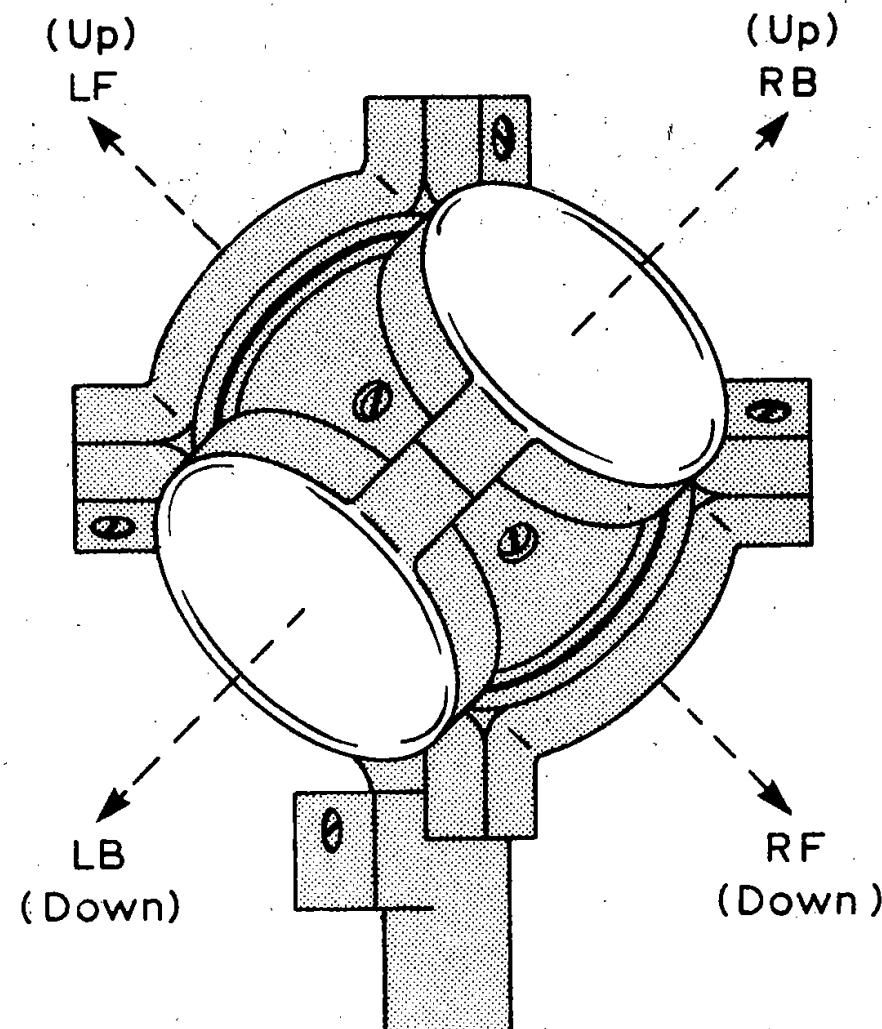


**VR Video
Binaural**

I will briefly talk about two more things:

- How build a mic that can record W, X, Y, Z
- Beyond linear decoding

How build a mic that can record W, X, Y, Z



M. A. Gerzon, "The design of precisely coincident microphone arrays for stereo and surround sound," in Preprint 50th Conv. Aud. Eng. Soc., Mar. 1975.

K. Farrar, "Soundfield microphone: Design and development of microphone and control unit," Wireless World, pp. 48–50, Oct. 1979.

Beyond linear decoding



- Most powerful and flexible A/B-Format plug-in
- Svein will talk about HARPEX next

Just a month ago, another parametric plug-in by Rode



AR/VR Audio has revived Soundfield/B-Format!

Today, you can buy several “Soundfield” microphones (chronological ordering)

- Original Soundfield Microphones



- Tetra Mic



- Sennheiser Ambeo VR Microphone



- Rode Soundfield NT SF 1



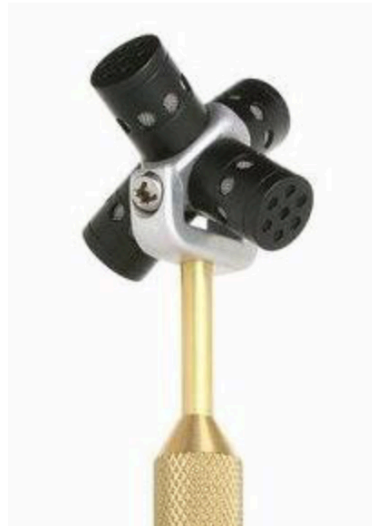
AR/VR Audio has revived Soundfield/B-Format!

Today, you can buy several “Soundfield” microphones (chronological ordering)

- Original Soundfield Microphones



- Tetra Mic



- Sennheiser Ambeo VR Microphone



- Rode Soundfield NT SF 1



**Brian will
talk about
AMBEO
Mic and VR
applications**