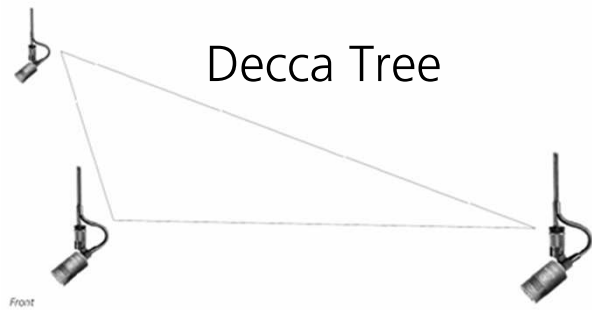


# SCHOEPS Surround Microphones

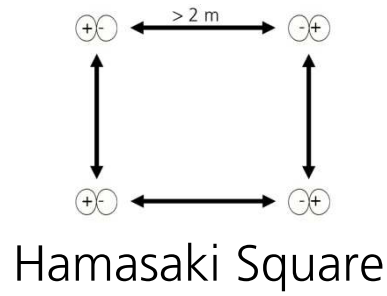


*Helmut Wittek, April 2012*

# SCHOEPS Surround Microphones



Decca Tree



Double M/S

## SCHOEPS Surround Microphones



OCT



IRT cross



ORTF Surround

Sphere Surround



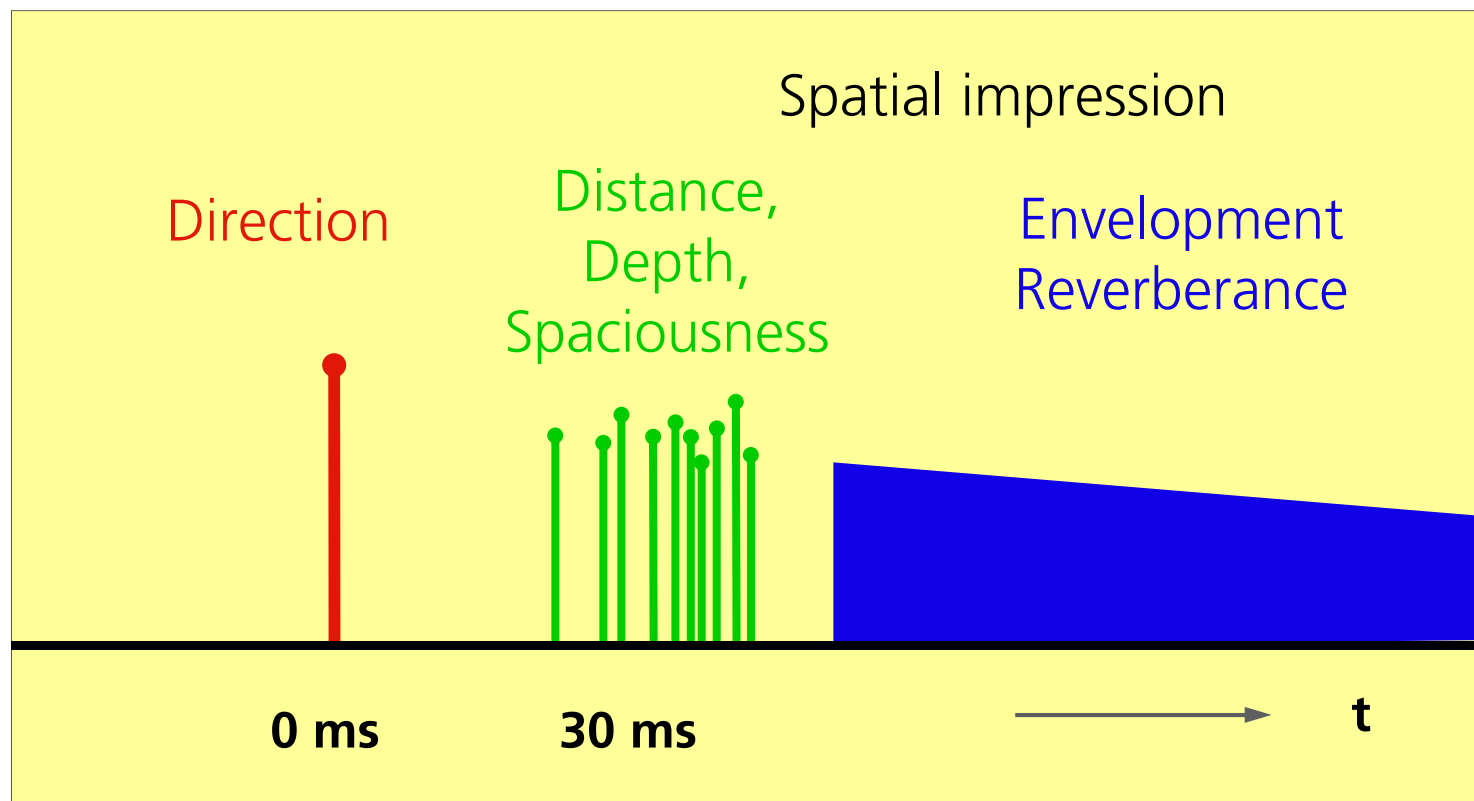
- The reference: perception of a natural source

**Discrete** Signals:

*Correlated*

**Diffuse** Signals:

*Decorrelated*

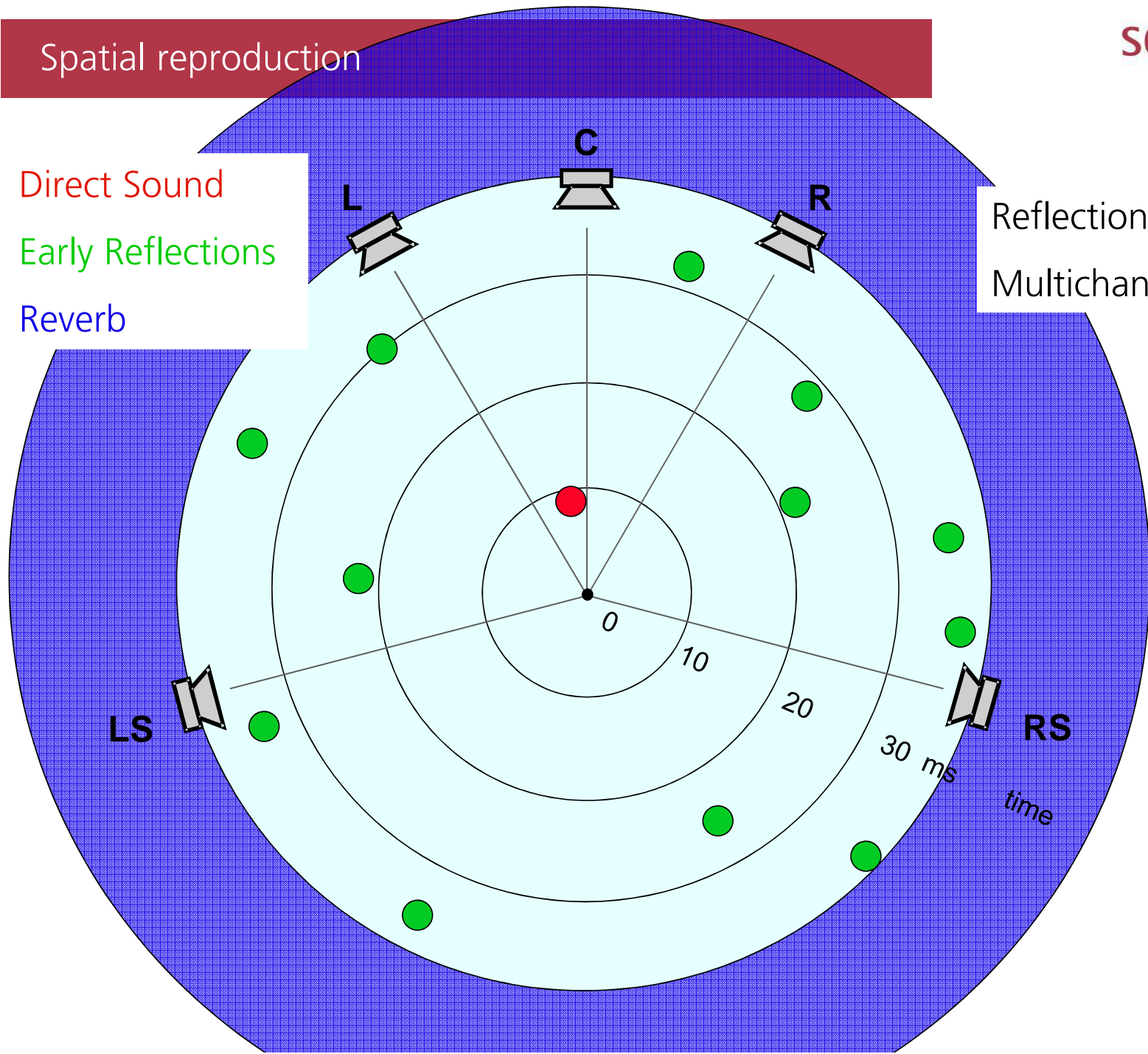


© Theile

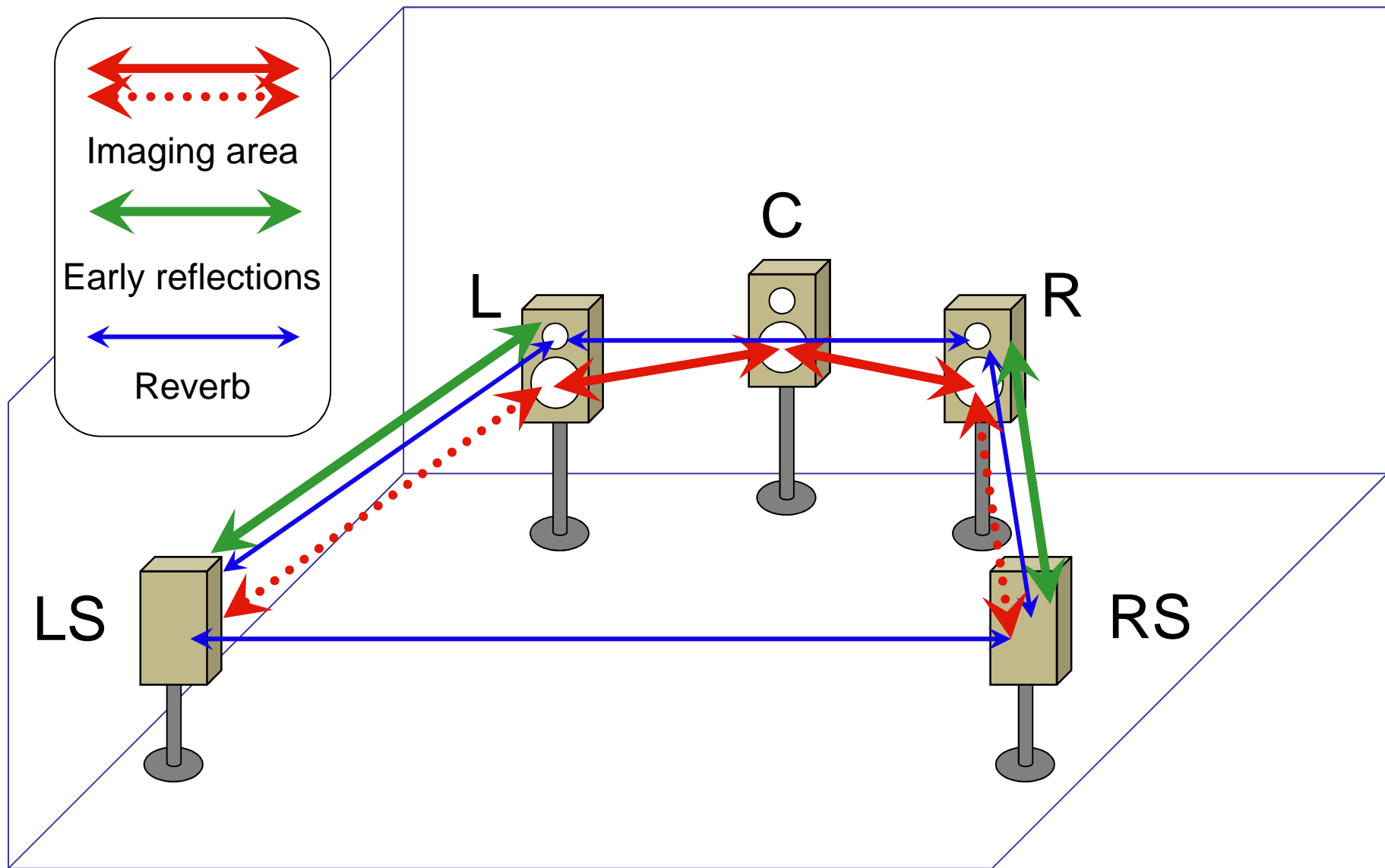
# Spatial reproduction

Direct Sound  
Early Reflections  
Reverb

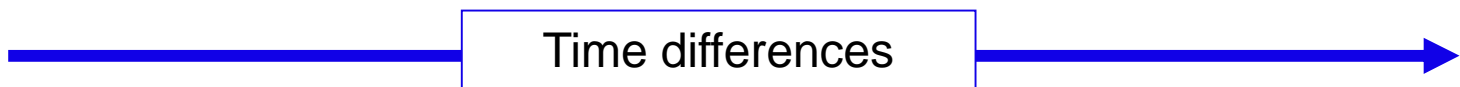
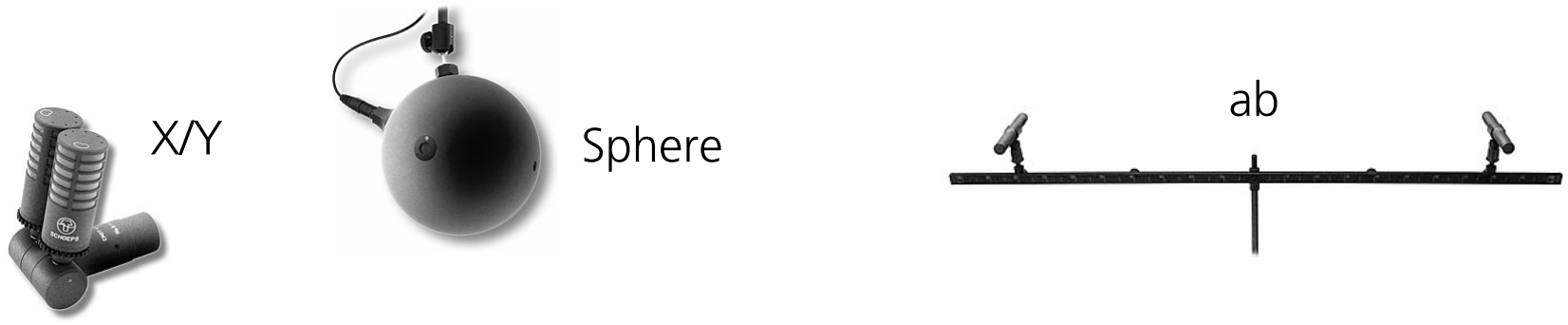
Reflections pattern  
Multichannel stereo



# Spatial reproduction by multichannel stereophony



# Stereo microphones: Principles



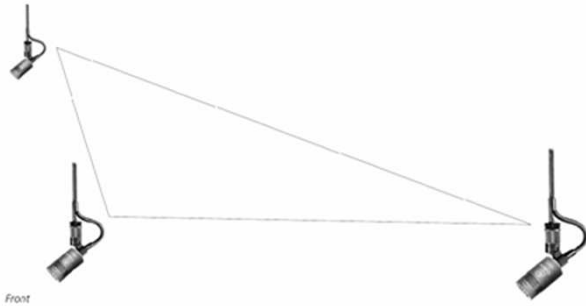
Stereo

# Surround microphones: Principles

Sphere Surround



ORTF Surround



Decca Tree



Compactness

Double MS



IRT cross



OCT Surround



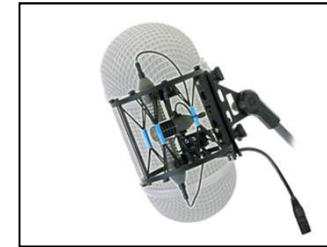
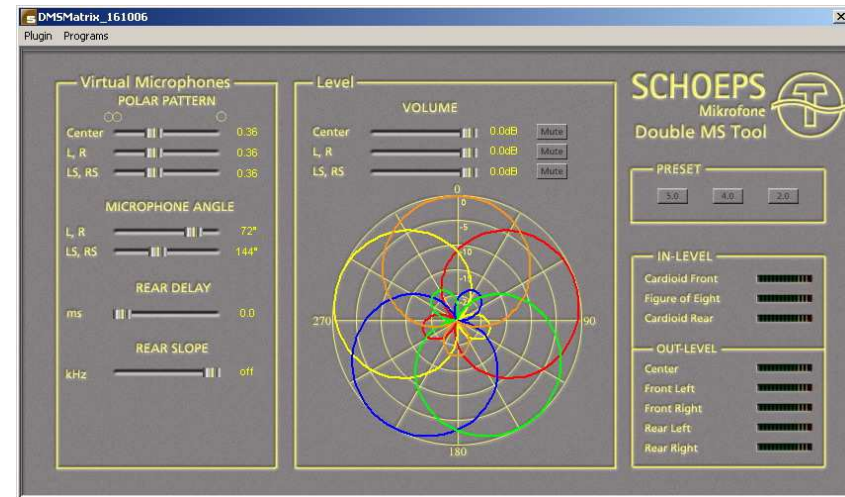
Time differences

Surround

# Surround main microphones: Double M/S

Double - M/S

**free** Plug-ins and Audio Samples:  
[www.schoeps.de/dmsplugin](http://www.schoeps.de/dmsplugin)





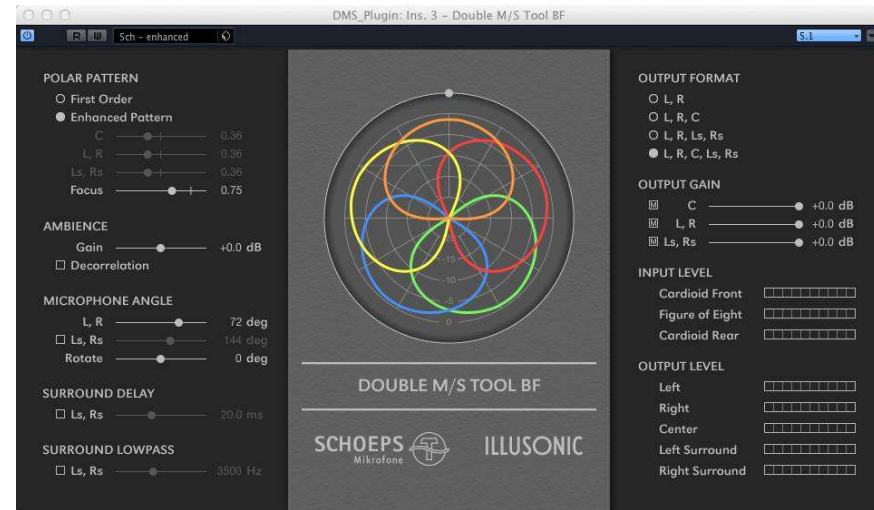
# Surround main microphones: Double M/S

Double - M/S

**free** Plug-ins and Audio Samples:  
[www.schoeps.de/dmsplugin](http://www.schoeps.de/dmsplugin)



ILLUSONIC



New:  
Double MS tool BF (beta)

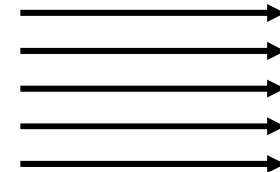


# Surround main microphones: Double M/S

Hardware matrix: MDMS U



or ...



L, R, C, LS, RS



Software Plug-in

## Surround main microphones: CMIT Double M/S

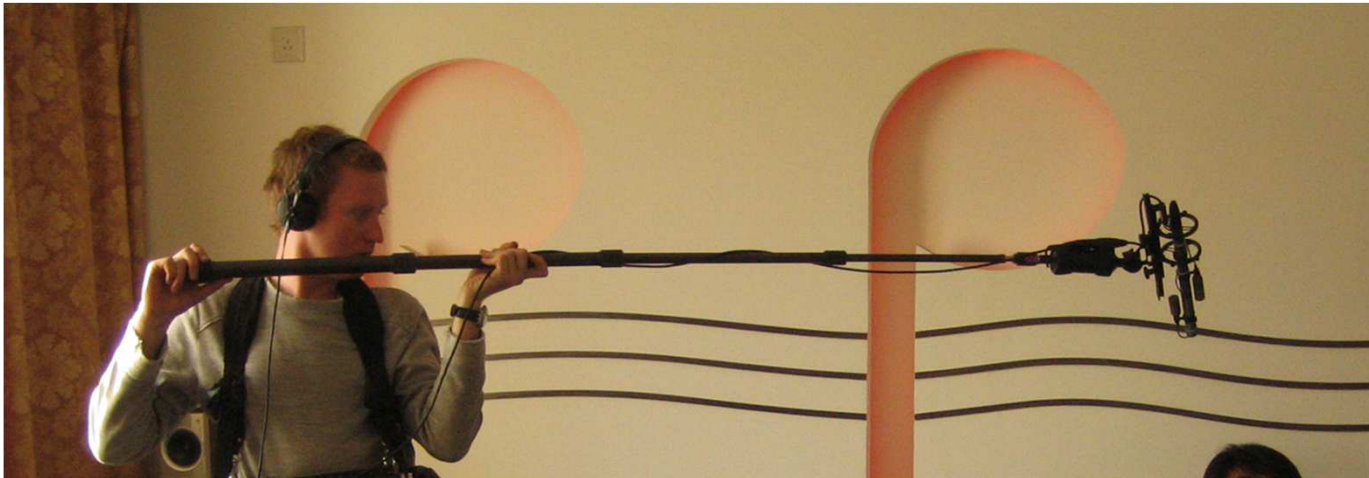
- Double M/S with shotgun



*WSC Piano PIA-3S*

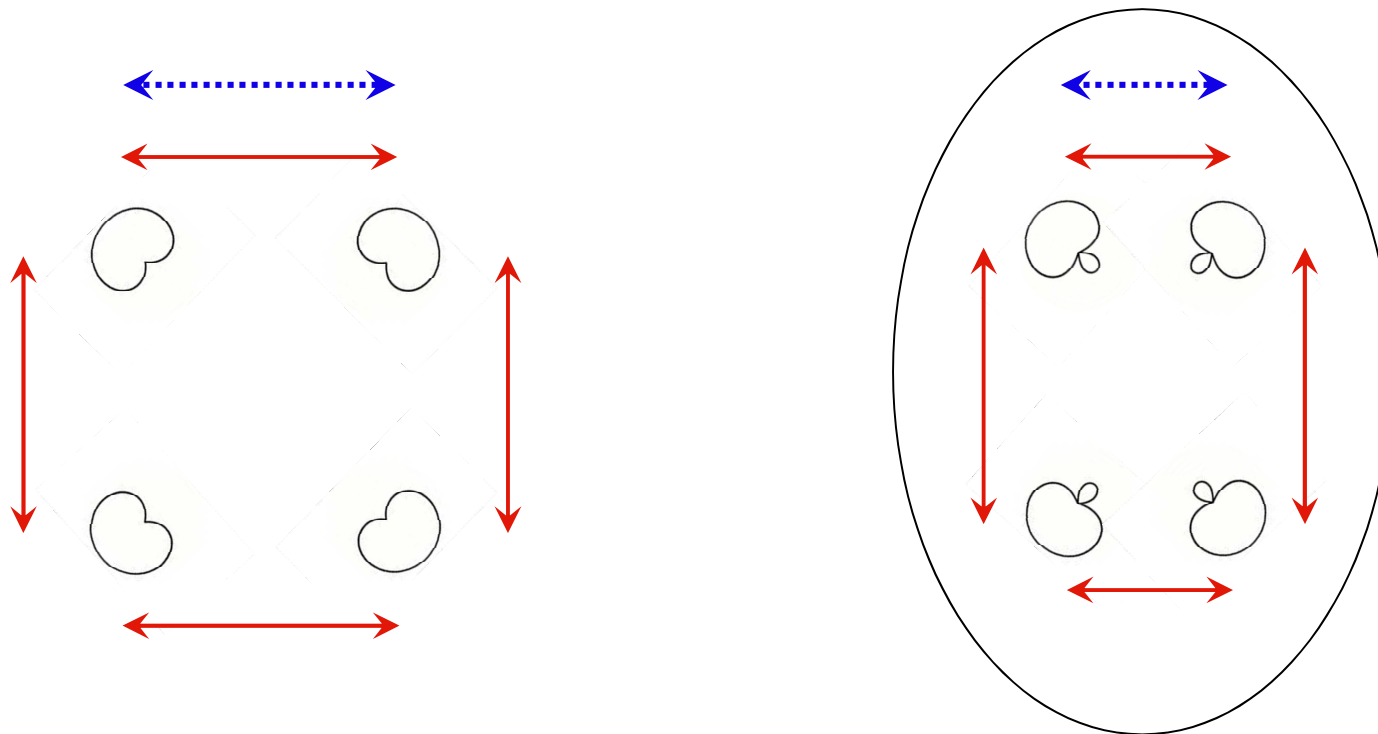


*WSR DMS CMIT LU*



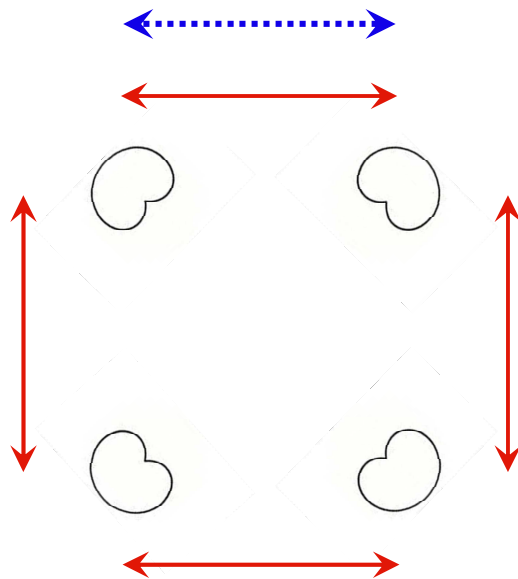
“IRT cross” or “ORTF Surround”:

- Reference setup for **ambience recording**
- Balanced directional imaging, good listener envelopment
- For ambience recording in Sports, Live, Music, Documentary
- invented by Theile ([www.hauptmikrofon.de](http://www.hauptmikrofon.de))



*"IRT cross"*

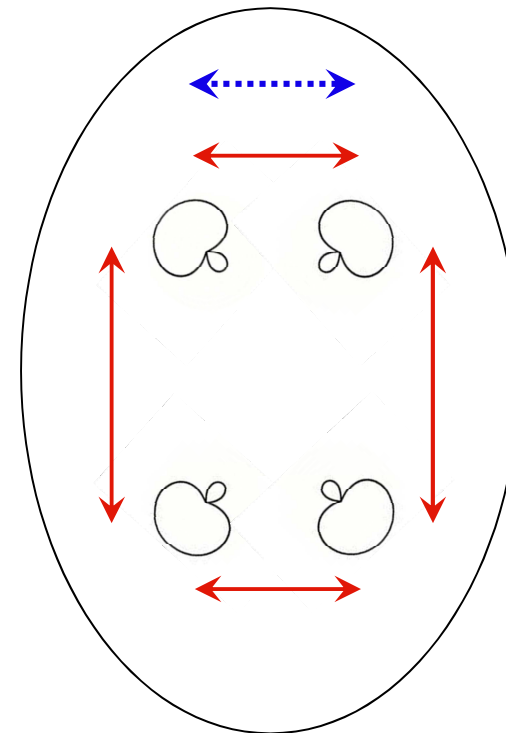
4 Cardioids at 20 cm - 90°  
4 Supercardioids at 14 cm - 90°



*"ORTF Surround"*

*(main surround pickup at the 2010 Soccer  
World Cup in South Africa)*

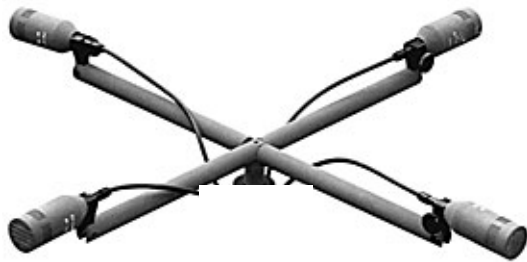
4 Supercardioids at 10/20 cm  
100°/80°



# Surround ambience microphones: IRT Cross/ORTF Surround

## "IRT cross"

4 Cardioids at 20 cm - 90°  
4 Supercardioids at 14 cm - 90°



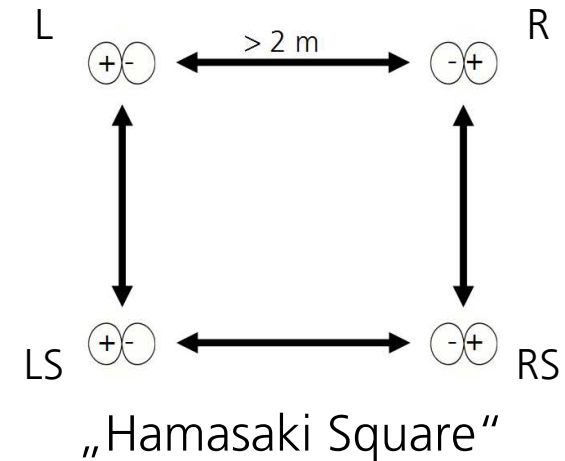
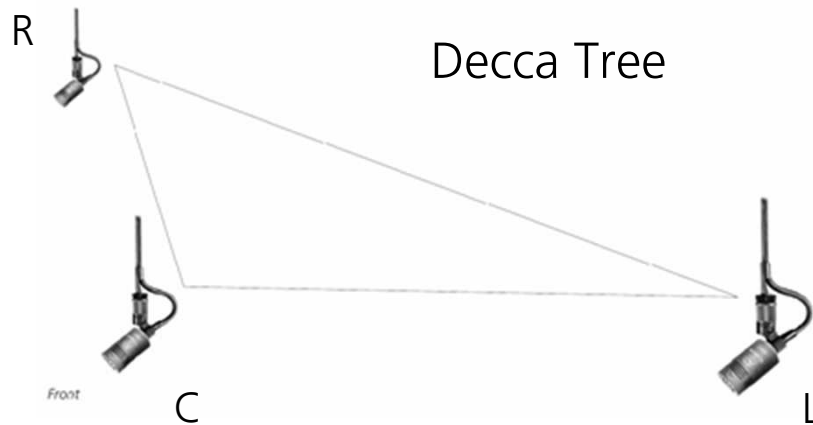
## "ORTF Surround"

*(main surround pickup at the 2010 Soccer World Cup in South Africa)*

4 Supercardioids at 10/20 cm  
100°/80°



## Surround main microphones: „Decca Tree“

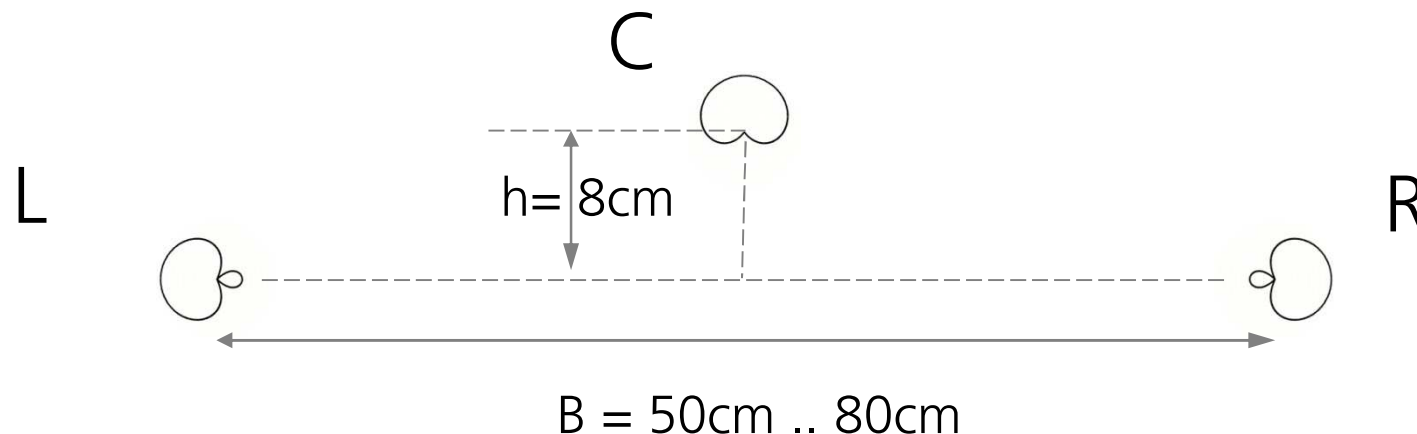


### Decca Tree:

- Spacious, warm sound
- is often mixed with "Hamasaki square" for Surround
- Needs spot microphones for precise directional imaging
- Do not use smaller distances than 1m between each microphone
- Recommended capsule: MK/CCM 2H, optionally with KA 40

### OCT:

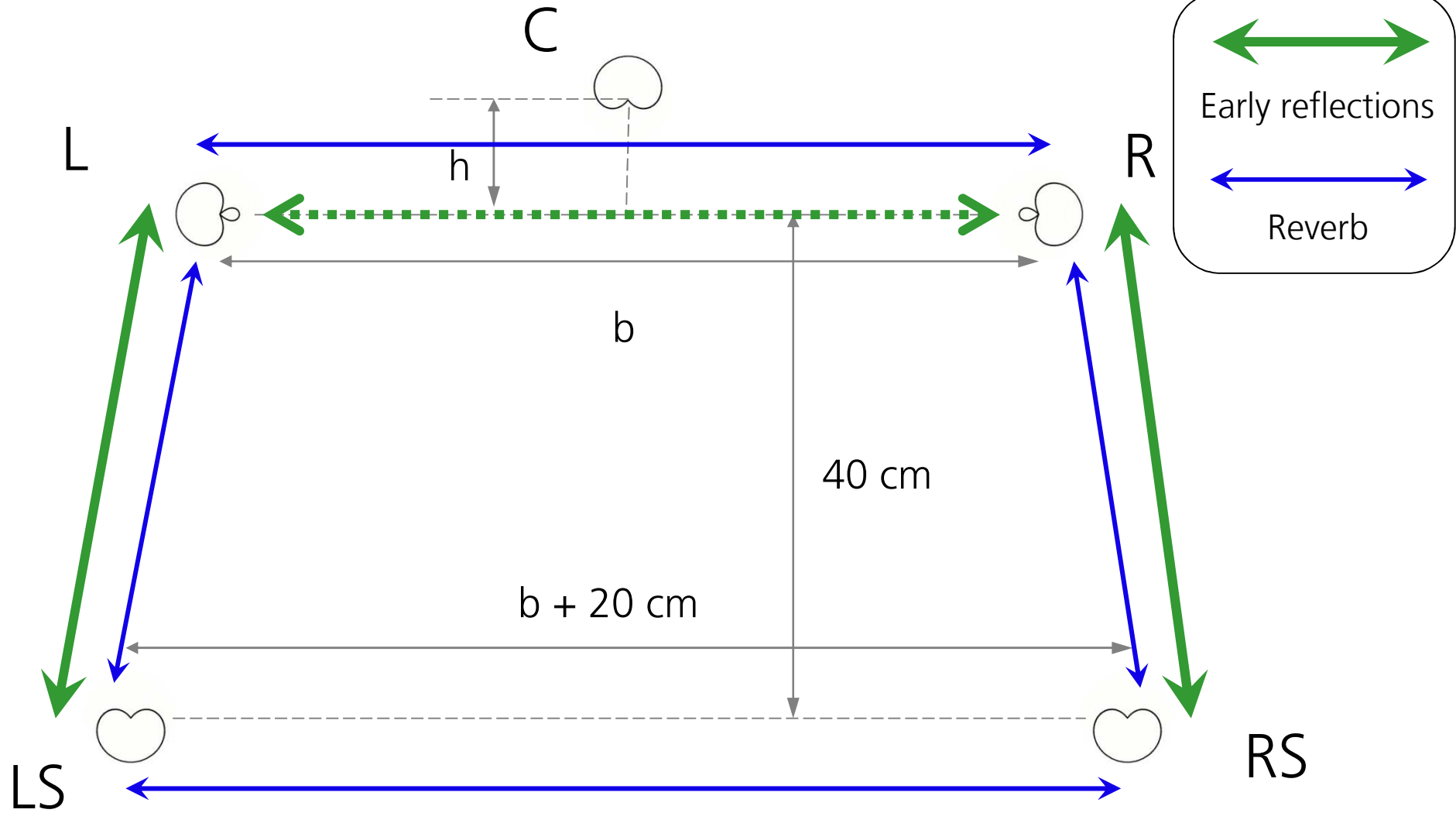
- OCT is one of the most popular “surround main microphone” techniques, it delivers a balanced spatial and directional image
- Good spaciousness, optimal directional imaging
- Can be supplemented to “OCT Surround” or with “Hamasaki square” for surround
- Has a fixed geometry, invented by Theile ([www.hauptmikrofon.de](http://www.hauptmikrofon.de))
- Recommended capsules: MK/CCM 41(V) for L and R, MK/CCM 4 for C





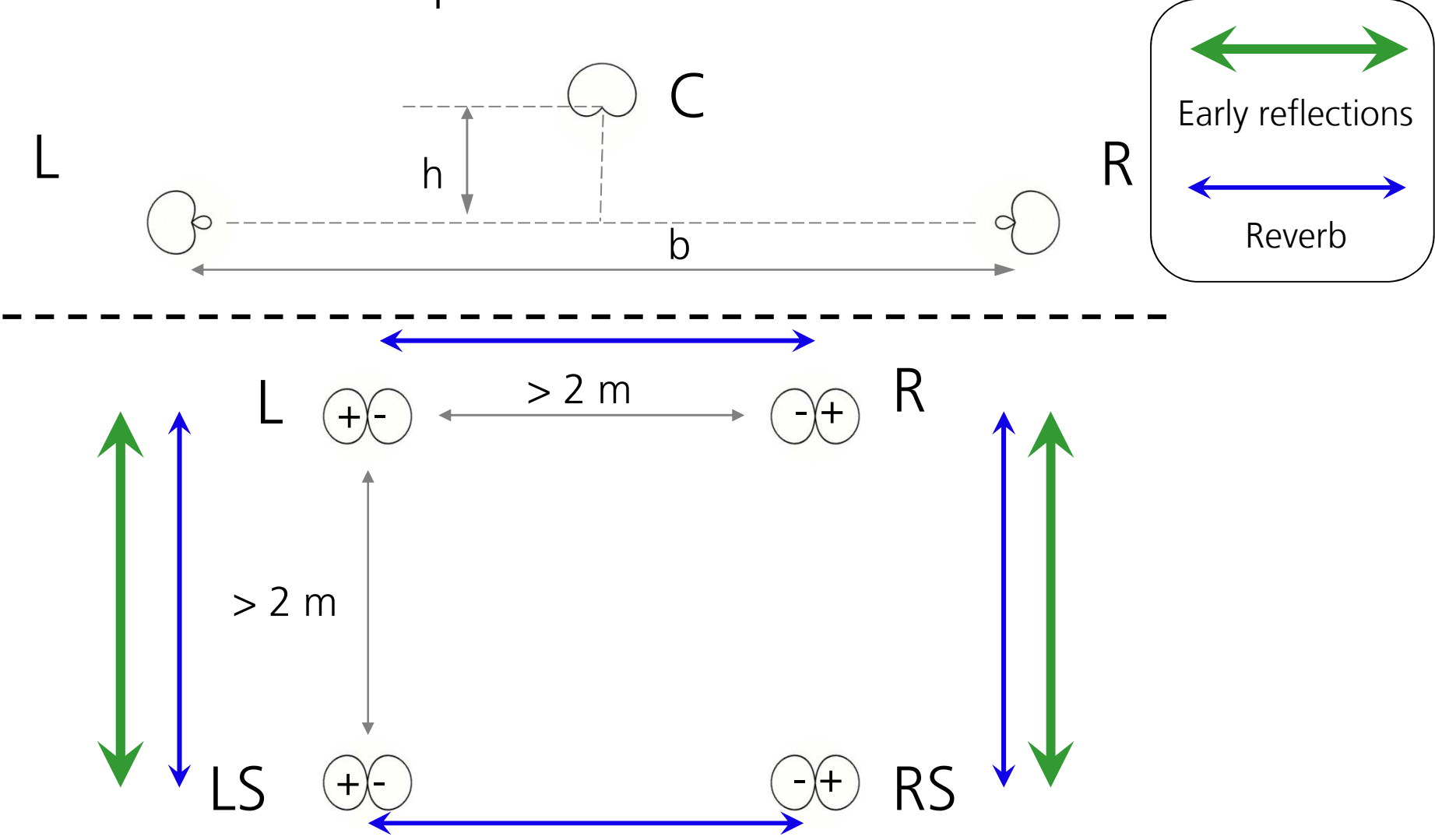
Surround main microphones: „OCT Surround“

OCT Surround



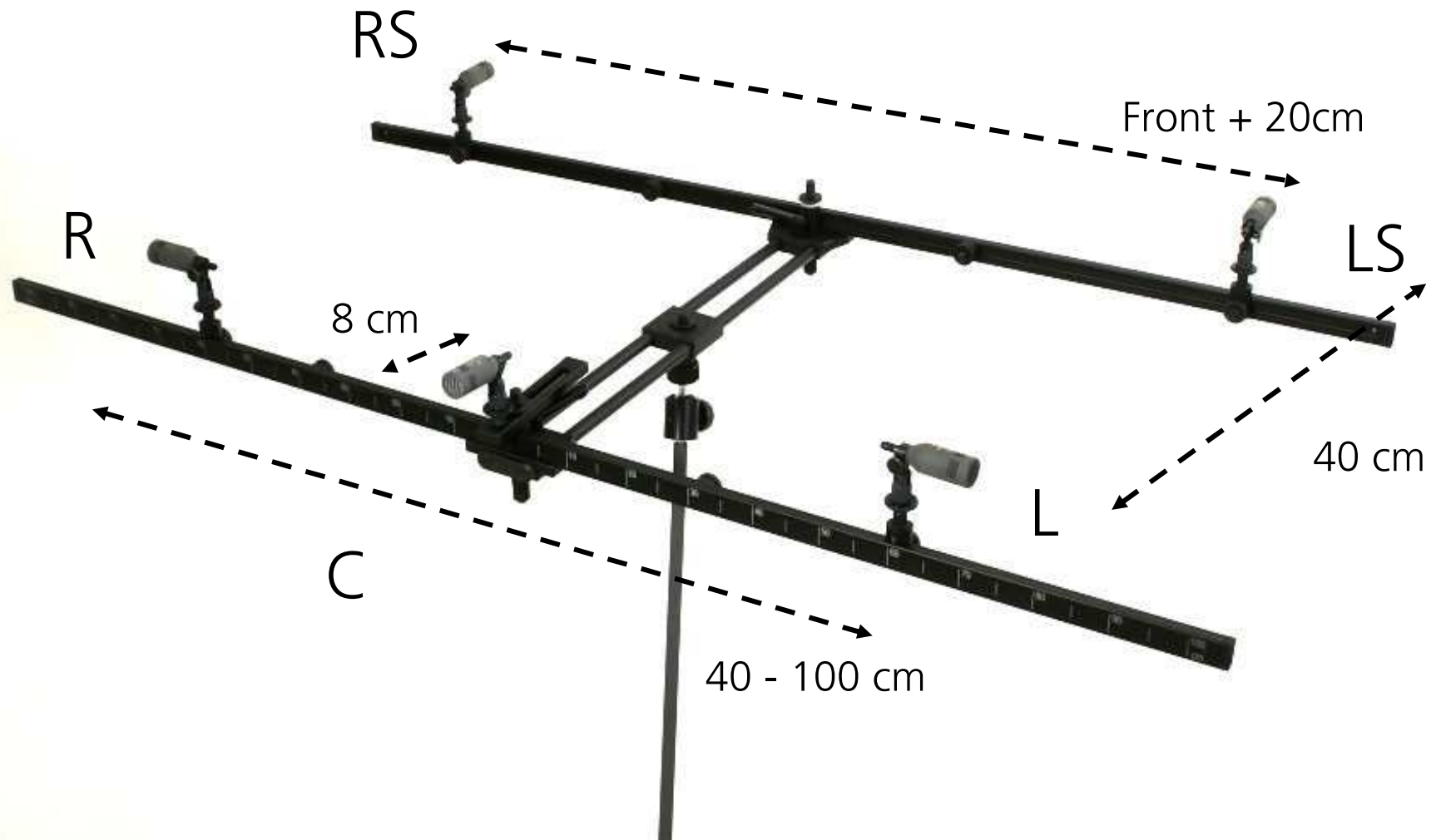
Surround main microphones: „OCT“

OCT + Hamasaki square



## Surround main microphones: „OCT Surround“

*OCT Surround* using 5 SCHOEPS CCM compact microphones and the stereo bars MAB1000



... more information...

- more information:
  - <http://www.schoeps.de>
    - Surround techniques and papers (Wittek) for download
    - detailed Infos on the setups
    - *free* Double M/S Plug-ins (Win/Mac)
    - Sound Samples
  - [www.hauptmikrofon.de](http://www.hauptmikrofon.de)  
(Image Assistant and audio samples ORF-DVD)
  - Contact →
    - [Surround "at" schoeps.de](http://www.schoeps.de)

