

Beyond Point Sources

Current research at IEM Graz with regard to
source based audio rendering

SpatDIF and GDIF meeting, May 20-21th 2010

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Facilities



Cube



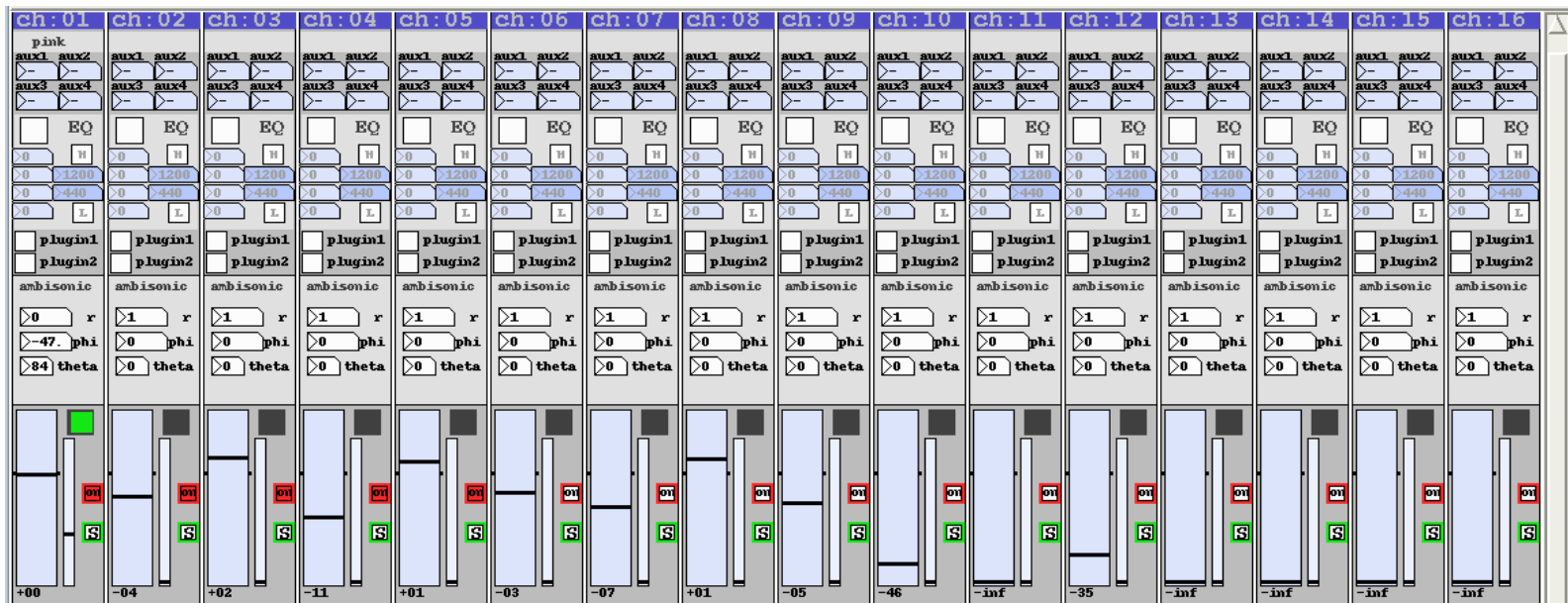
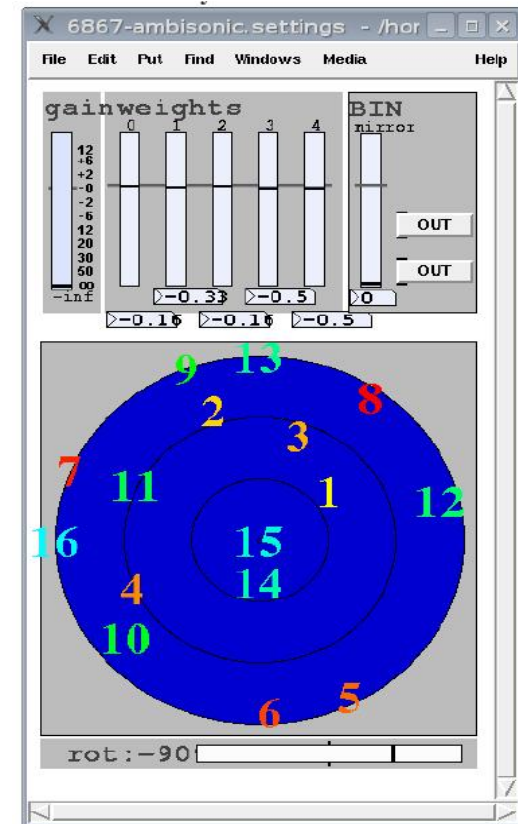
MuMuth

mklAVE



Render Engine: Cubemixer

- Hemisphere Ambisonics, discrete channels
- OSC Interface between GUI and DSP
- Room Model, Virtual Room Acoustics
- Binaural Rendering
- No scene authoring yet. ->SpatDIF?
- <http://ambisonics.iem.at/>

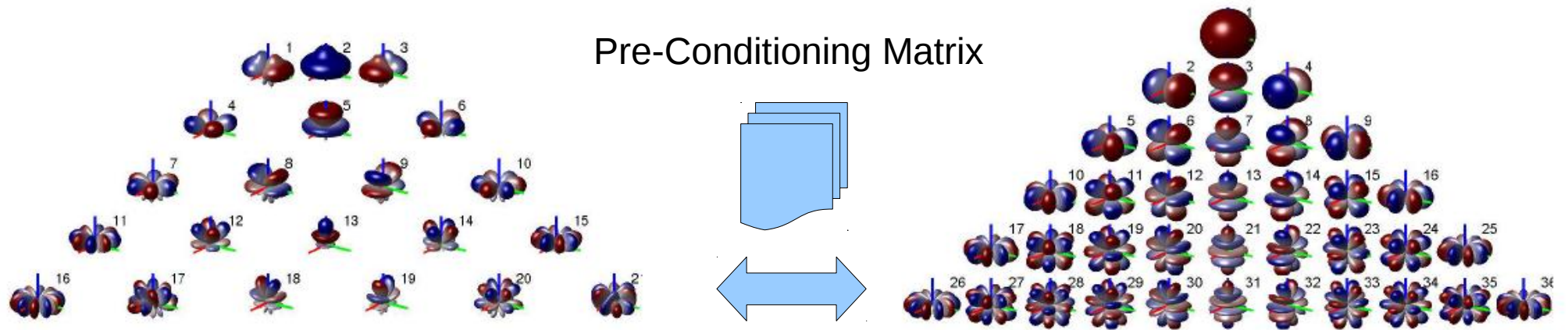


Spatial Audio Practice and Problems:

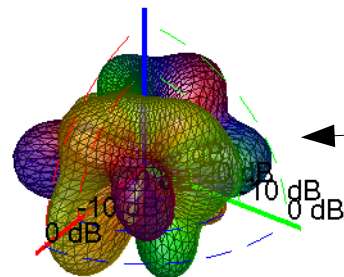
- Renderers are not at all equal (WFS, Ambi, 2D, 3D)
- Assumption: Point sources outside a sweet area
- Composition: Source width, discrete channels, coordinate systems(!)
- How to span spaces: Spectral, phantom sources/correlation/grains, associative, with respect to playback venue (acousmatic).
- Composed sound sources need not be physical

Beyond Point Sources: SpatDIF Extensions

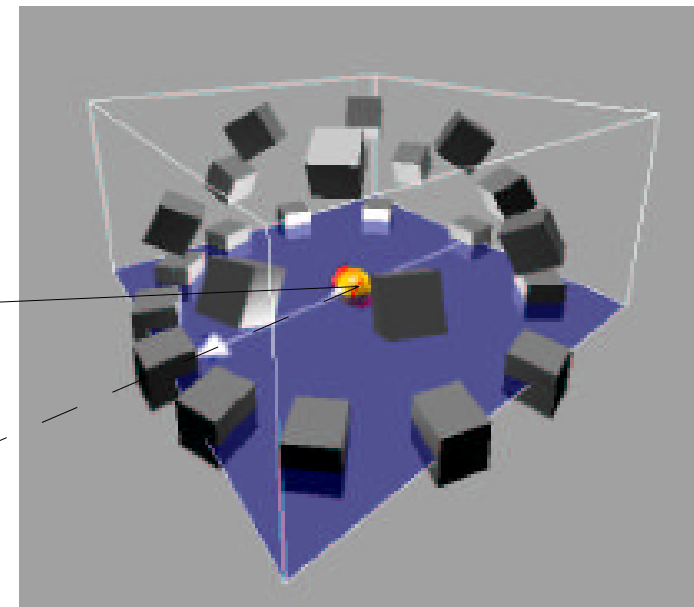
- IEM Ambisonics format: 2D/3D, full/half spheres



- Source radiation and room models:



R



Summary/Suggestions

- SpatDIF must stay human-readable and editable (adjust on site, scene graph)
- Unify scene description + authoring tools (reuse)
- Topics of special interest wrt header data: Sweet area, scene scaling, reference radii, to facilitate portability between different rendering systems.
- SpatDIF Core: Angles, source width, discrete channels
- SpatDIF Extensions: Soundfield playback, Source directivity
- What we will really learn from SpatDIF