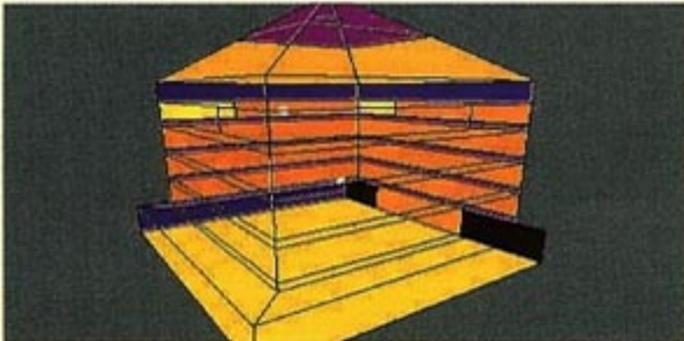# CATT-Acoustic™ v8

Room Acoustics Prediction and Desktop Auralization

The *OpenGL*-based *CATT 3D-viewer* offers enhanced 3D-viewing with surface color-coding (material, absorption factor, scattering coefficient, specularity, diffusitivity), variable lighting, viewpoint lists, animated viewpoint transitions, walkthrough with auto-playing auralized WAV-files and many viewing options. The viewer is a small stand-alone application that is ideal for customer presentations.

Auralization with head-tracking
Real-time low-latency convolution
Walkthrough off-line convolution
Fast desktop auralization via soundcard
Binaural or loudspeaker processing
Color maps of numerical measures, directivity contours
Graphs/plots of numerical measures, echograms
Estimation of numerical measures (C-80, EDT, LF, RASTI...)
Estimation of reverberation time (T-15, T-30)
Calculation of reverberation time (classical, Sabine etc.)
Ideas, concepts, visions
Experience
Knowledge

Lake DSP

CATT-Acoustic

You

CATT-Acoustic™ v8 is a seven-module integrated application for *32-bit Windows®*. It combines numerical prediction, multiple source addition, convolution, auralization, sequence (batch) processing, source directivity and surface property library handling. In addition, the stand-alone *OpenGL*-based *CATT 3D-viewer* can be used for enhanced 3D-viewing and customer presentations.

catt

RPG
Design Tools

The **Prediction module** utilizes the unique Randomized Tail-corrected Cone-tracing (RTC-II), the Image Source Model (ISM) as well as Ray-tracing. The module predicts room acoustical numerical measures, and creates data files for multiple source addition and for further post-processing for auralization.
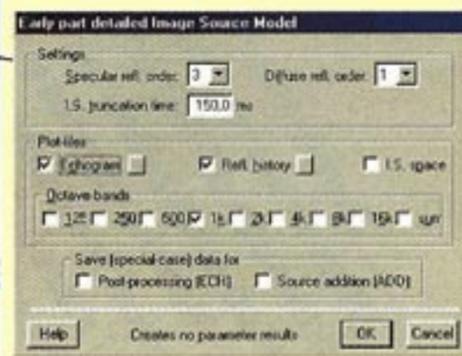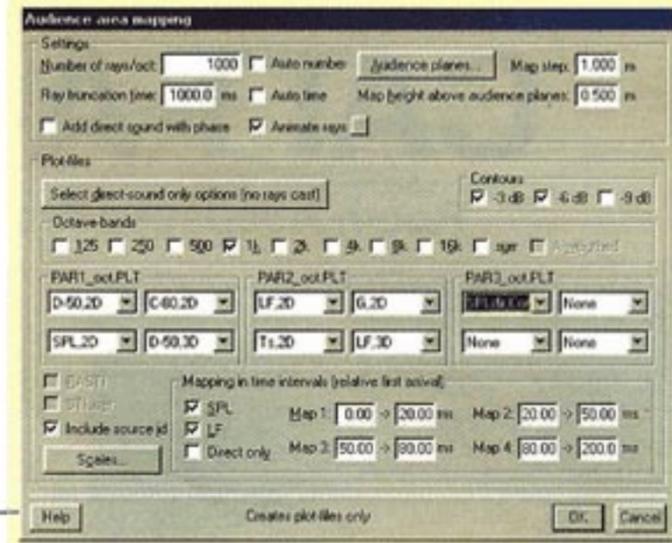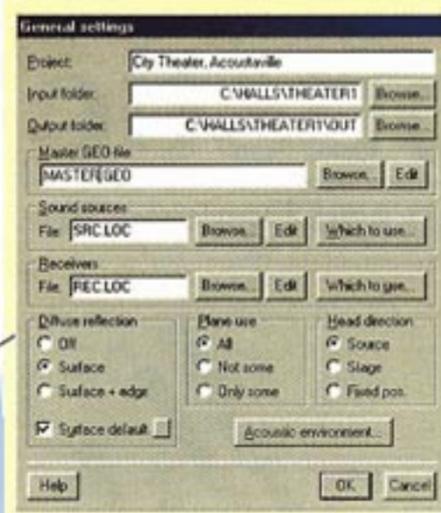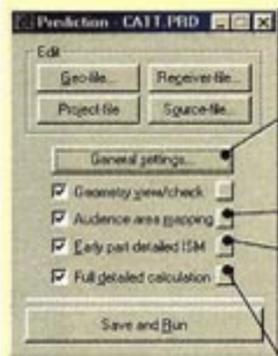
Based on results from the Prediction module, the **Multiple source addition** module creates sum echograms by addition of individual source echograms where source directivity, aim, eq, background noise and delay can be varied without need for a full recalculation. Source changes can also be applied to individual source echograms. The module optionally creates new data for multiple source auralization.
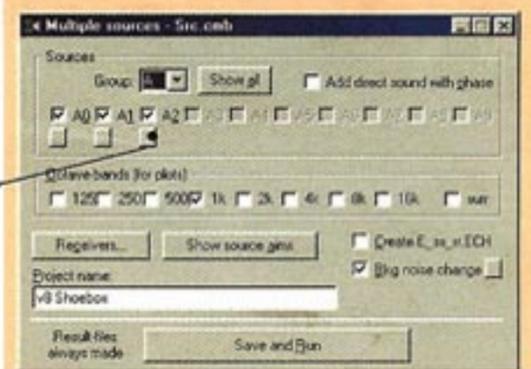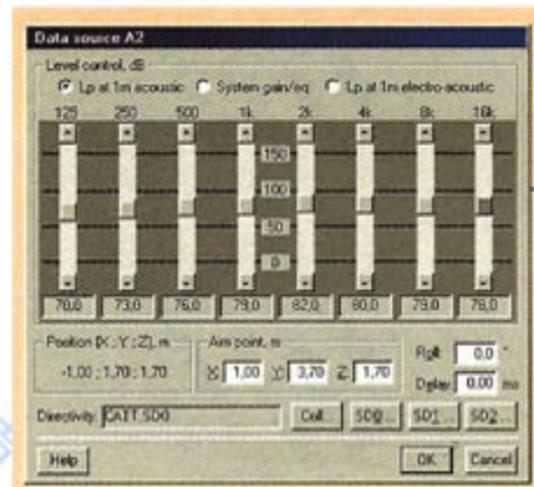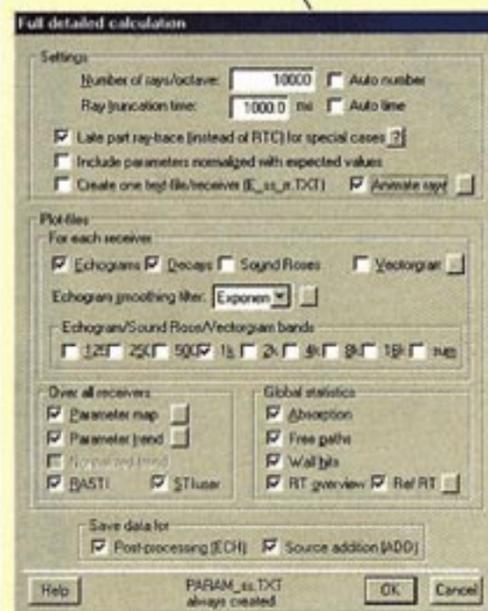
Octave-band echogram reflections, created by the prediction module, are via DSP procedures and HRTFs transformed to binaural reflections creating a binaural impulse response to be convolved with anechoically recorded material - *auralization*. The **Post-processing module** offers many other post-processing options (mono, stereo, B-format, 5-channel), multiple source auralization, fast convolution, walkthrough convolution, crosstalk cancellation, headphone equalization, and an assortment of file format conversions, scaling, filtering, samplerate conversion and calibration utilities as well as a WAV-file player with A/B and a playlist.

All steps from prediction over binaural post-processing, filtering to convolution and WAV-file calibration can be performed in "batch" using the **Sequence processing module**. Sequence merge, re-arrange, loops and string variables give flexibility and power.