



ISAC – 2023

“Eugenio Giordani”

Pesaro UNESCO Creative City of Music – ITALY

1. Premise

The great leap forward that free ambisonics technology has produced in recent years has allowed the development of an increasing number of artistic creations in various areas of music production. Electronic and mixed music, soundscape art, thematic documentary, audio drama, music recording etc., are all finally embracing spatial audio techniques to shape sound on a spherical domain, where space (position, dimension, distance and perspective of sound sources) becomes a usable compositional element.

Even if sound synthesis/manipulation/post-production software and hardware for these creations are now widely available, it is obviously much rarer to find theatres and structures capable of reproducing these works in HOA spherical periphony, especially for an audience of adequate size.

The presence in the city of Pesaro (Italy) of two public venues for high quality ambisonics and 3D-audio (**SONOSFERA®** at the Civic Museums of Pesaro, and **SPACE** Soundscape Projection Ambisonics Control Engine at the “G. Rossini” Music Conservatory) constitute an exceptional opportunity for contemporary music in exploiting the potential for 3-dimensional sound composition in all possible forms of innovation.

SONOSFERA® in particular, is able to fulfill both needs: a technological standard of 6th order ambisonics of the highest sound quality level, and a capacity of 60 seats.

Sonosfera® is a patented mobile technological amphitheatre for deep listening of ecosystems and music, designed for Pesaro UNESCO City of Music by David Monacchi, opened to the public in Dec 2019. It is equipped with an array of 45 custom-built loudspeakers isotropically positioned in a spherical space (with the only exception of the *nadir* area) within perfect internal acoustics. Sound-transparent circular terraces lift the audience above an acoustically ‘active’ lower hemisphere, while the upper one is also equipped with a 360° projection screen with horizontal resolution of 24k. Sonosfera® puts listeners at the centre of soundscape, in the darkness of a stimulating acousmatic sensorial experience, sometimes “lighted up” by visual analyses of sound.

Sonosfera® was originally designed and built for spherical reconstruction of HOA field recordings carried out in primary tropical rainforest ecosystems, as part of the scope of the long-term project *Fragments of Extinction*. But Sonosfera® is of course capable of reproducing any 3D-soundfield with extreme accuracy and spatial resolution, including new creations of electroacoustic, soundscape, and integrated audio-visual compositions. For this reason, ISAC-2023 represents the first occasion to use this perfect 3D-sound instrument and venue, within a framework of contemporary research music and sound/visual creation.

ISAC competition is based on an idea of Eugenio Giordani, emeritus professor of Electroacoustic Music Composition at the Conservatory G. Rossini of Pesaro, who imagined a competition for the Sonosfera® in early 2020, just before the first wave of the pandemic. Eugenio passed away due to Covid-19 on April 4th 2020. ISAC competition is thus permanently dedicated to Eugenio Giordani, whose work and tools in musical informatics, sound engineering and aided electroacoustic composition still inform current practices of musicians and composers on a local and global scale.

ISAC competition represents a way to sustain creative practices of full-periphonic music production and soundscape studies. Fostering the diffusion of a culture that does not rise from the main stream proprietary commercial software, ISAC tries to link to the original ambisonics technology and inspiration.



2. Call

ISAC competition calls for outstanding 3D-audio works created for full-sphere reproduction, for an acousmatic or audio-visual listening experience.

Requested works will have to be presented in 6th order ambisonics format - maximum duration of 10 minutes. (See section 8. for specifics)

Candidates can submit their works exclusively online using the following Google Drive space:

1) PDF file 1 — Program notes including:

- Title (and subtitle if applicable)
- Duration (max 10.00 min.)
- Short synopsis with any information on poetics and compositional strategies
- Technical information and preferred playback context (*)

2) PDF file 2 — Short bio + extended CV

3) WAV file — 6th order ambisonics ACN-SN3D, 48kHz-24bit (see more specifics on section 8).

** Note: Sonosfera® is equipped with an RGB 60+8+4 spots lighting system. Authors may conceive their works for a lighting spectrum that goes from total darkness to any desired color/intensity.*

3. Categories

A) Acousmatic

1. Electroacoustic Music
2. Soundscape Composition

B) Integrated Audio/visual

A minimum of n.1 prize per category will be assigned.

4. Awards

| | | |
|--------------|--------|----------------------|
| First Prize | € 2000 | (+ hotel for 3 days) |
| Second Prize | € 1000 | (+ hotel for 3 days) |
| Third Prize | € 500 | (+ hotel for 3 days) |

The jury reserves the right to assign also up to n. 2 special mentions. All awarded compositions and special mentions will be performed in the final concert.



5. Juries

There will be two different juries. A first local Jury will pre-select compositions on the base of eligibility, technical feasibility, aesthetics and potential result in Sonosfera®. A second International Jury will select winners from a short list of best suited compositions.

Steering Committee:

David Monacchi, Carmine Emanuele Cella, Nicola Casetta, Alessandro Petrolati, Tommaso Giunti.

Guest Jury:

Chris Chafe (CCRMA - USA), Natasha Barrett (NSAM - Norway), Barry Truax (SFU - Canada), Otolab (Italy), Rainer Kern (Germany).

6. Timing

- From the publication date of the call, there will be 60 days for submission.
- Local jury will select eligible compositions immediately after the call deadline.
- International jury will then examine works and announce winners on March 25th 2023.
- Awards ceremony and concert in Pesaro will take place on May 12th 2023.



Award ceremony will take place in an institutional venue of Pesaro UNESCO Creative City of Music, with the Major of the city, members of Juries and general public.

7. Concert

A final concert will take place as main event after the awards ceremony to celebrate the nominees and their works. All awarded compositions and special mentions will have the right to be performed in the concert event in Sonosfera® scheduled for Friday, May 12th 2023.

The three nominees and mentions will have the possibility to work in the Sonosfera® during the 3 days prior to the concert, for optimizing and mixing their works for the specific full-sphere space.

Sonosfera® is capable of hosting 60 people per session, thus a number of performances will be scheduled during the day of the awards ceremony and over the week. The final schedule will be communicated depending on bookings from general public and authorities.

8. Submission

Technical specifications for AUDIO FILES

A) For selection phase:

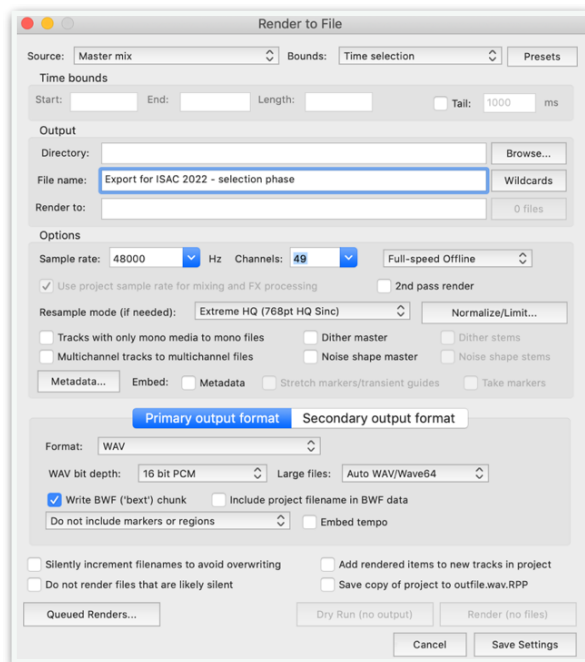
Ambisonics compositions are requested in 6th order full-sphere Ambisonics format (49 channels), with the following characteristics:

- "WAV multichannel" (also known as "Wave64") - single 49 ch. WAV file
- Sample rate: 48 kHz
- Quantization: 24 bit preferably (16-bit are accepted for selection phase – file size optimization and internet upload ease)
- Channel ordering: ACN (AmbiX)
- Gain normalization: SN3D (AmbiX)

Note: if 6th-order ambisonics file cannot be produced or rendered, 3rd to 5th order ambisonics format (16-25-36 channels) can also be accepted, but their reproduction will not be ideal in Sonosfera®.

Awarded composers will of course have the possibility to remix their works in 6th-order ambisonics directly in Sonosfera®. Thus, we recommend composers leave the synthesis and multichannel mix processes as more open as possible for further spatial resolution implementation. Given current HOA microphone technologies limitations, pure field recording-based soundscape compositions can have the limit of 4th order ambisonics. These awarded compositions can be specifically processed for optimization in Sonosfera®.

Example of Reaper Export dialog:



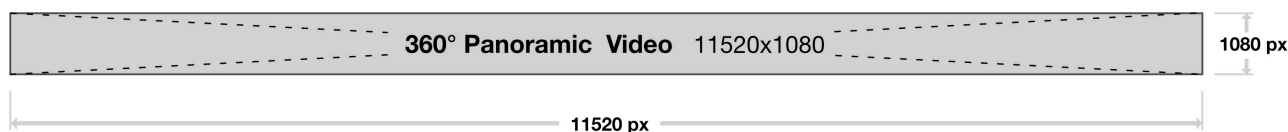
B) For concert in Sonosfera®:

Awarded compositions will be mixed by authors directly in Sonosfera®, and then rendered for final concert in 6th order ambisonics 48kHz-24bit.

Technical specifications for VIDEO FILES

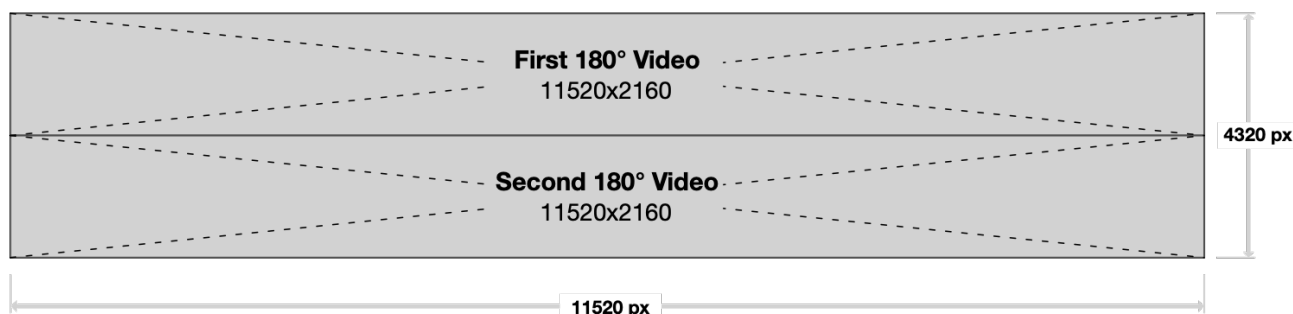
A) For selection phase:

- **Standard video (16:9)**
Single video .mp4 or .mov (codec H.264, HEVC) frame rate 30 fps.
- **Panoramic video 360° (32:3)**
Single video .mp4 or .mov (codec H.264, HEVC) with max resolution 11520x1080 px - frame rate 30 fps (ratio 32:3).



B) For concert in Sonosfera® (awarded compositions of category 2):

- **Standard video (16:9)**
Single video .mp4 or .mov (codec ProRes 422) - frame rate 30 fps.
- **Panoramic video 360° (16:6)**
General single video .mp4 or .mov (codec ProRes 422) with resolution of 11520x4320 px - frame rate 30 fps with these specifics:
 - First 180° video (11520x2160 px) - frame rate 30 fps - in the upper sector of the video
 - Second 180° video (11520x2160 px) - frame rate 30 fps - in the lower sector of the video
 - Two video .mp4 or .mov (codec ProRes 422) 11520x2160 px resolution, frame rate of 30 fps. First 180° section positioned in the upper part and the second 180° section in the lower part (see below).



Video specifics in Sonosfera®

In Sonosfera® the video is projected on the panoramic screen through n.6 Ultra HD 4K projectors (Panoramic 360° - ratio 32:3) - see below:

