



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 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 spherical 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 mobile technological amphitheater 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 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 center 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 in music and sound/visual creation.

ISAC competition is based on an idea of Eugenio Giordani, emeritus professor of Electroacoustic Music Composition at the Music Conservatory 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. The procedure starts by sending an email indicating name, nationality and age of the candidate to the following email address: isac.pesaro@gmail.com

A response with a link to a Google Drive private folder (were the candidate can upload all his material) will be sent to his email address. Every candidate can modify his folder until the end of the call. The Steering Committee will process all submissions in order to eliminate any reference to candidates' names and data, and will send to the International Jury only the compositions for blinded judgment.

The requested material will have to include:

1) PDF file 1 — Program notes (with no reference to the name of the candidate) including:

- Title (and subtitle if applicable)
- Duration (max 10.00 min.)
- Short synopsis with any information on poetics and compositional strategies
- Technical information including original spatialization techniques used

2) PDF file 2 — Name with short bio + extended CV

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

3. CATEGORIES

A) Acousmatic

1. Electroacoustic Music
2. Soundscape Composition

B) Integrated Audio/visual

4. AWARDS

First Prize	€ 2500	(+ 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 the overall 3 prizes to category A, B or both.

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 Steering Committee will pre-select compositions on the base of eligibility, technical feasibility, aesthetics and potential result in Sonosfera®. A Guest Jury will select winners from a short list of best suited compositions.

Sonosfera® Curators:

David Monacchi, Daniele Vimini

Steering Committee:

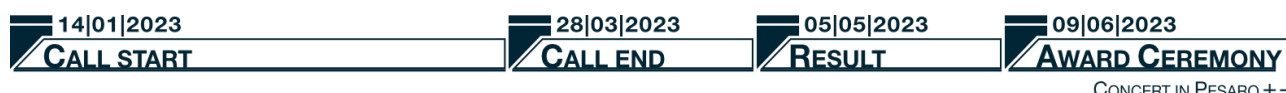
Nicola Casetta, Carmine Emanuele Cella, Tommaso Giunti, David Monacchi, Alessandro Petrolati.

Guest Jury:

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

6. TIMING

- From the publication date of the call, there will be 74 days for submission.
- Local jury will select eligible compositions immediately after the call deadline.
- International jury will then examine works and announce winners on May 5th 2023.
- Awards ceremony and concert in Pesaro will take place on June 9th 2023.



Award ceremony will take place in an institutional venue of Pesaro UNESCO Creative City of Music, with the Major of the city, cultural and institutional authorities, 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, June 9th 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.

Note: Sonosfera® is equipped with an RGB 60+8+4 spots lighting system. During preparation of the concert authors may suggest lighting spectrum that goes from total darkness to any desired color/intensity, arranged by local collaborators.



8. SUBMISSION

Technical specifications for AUDIO FILES

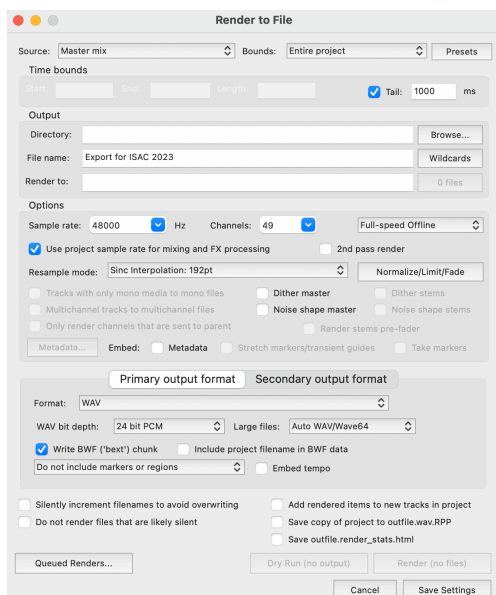
A) For selection phase:

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, 3th 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 have final mixing capabilities prior to the concert in Sonosfera® but we strongly suggest to compose and process already in 6th order ambisonics, monitoring the 3D audio-scene through headphones with free or commercially available Ambisonics binauralizers. Given current HOA microphone technologies limitations, pure field recording-based soundscape compositions will have the limit of 4th order Ambisonics. These awarded compositions can be specifically processed for optimization in Sonosfera® prior to the concert. It is recommended the use of proper 6th order Ambisonics tools both for spatial processing and post-production of audio scenes, as for example IEM and Sparta tools. Authors which are not familiar with Ambisonics might be willing to re-encode their multichannel composition in Ambisonics format (virtual speakers) or to re-spatialize them in Ambisonics starting from the original N files or synthetic/concrete sound objects (suggested).



Example of Reaper Export dialog

B) For concert in Sonosfera®:

Awarded compositions can be mixed by authors directly from their laptop computer connected to Sonosfera® via Dante protocol, and then rendered for final concert to 6th order Ambisonics 48kHz-24bit format.

Technical specifications for VIDEO FILES

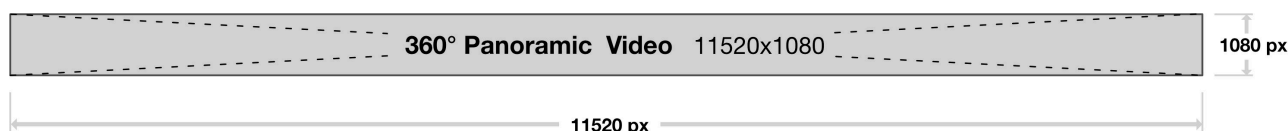
A) For selection phase:

- Standard video (16:9)

Single video .mp4 or .mov (codec H.264, HEVC) with max resolution Ultra HD 4K - frame rate 30 fps.

- Panoramic video 360° (32:3)

Single video .mp4 or .mov (HEVC) with max resolution 11520x1080 px - frame rate 30 fps (ratio 32:3).



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

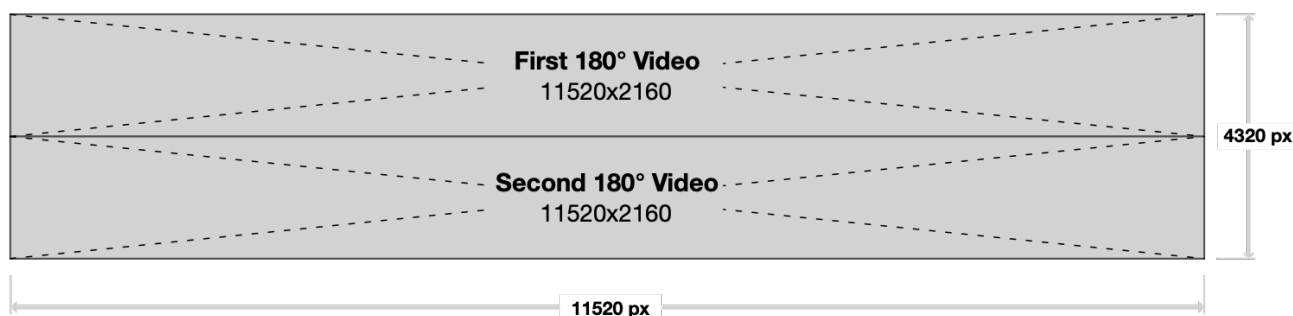
- Standard video (16:9)

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:

