Relevant previous or current academic work

Samuel Narváez is currently developing a master thesis entitled “Advances in Spatial Wavelet Format” as part of the “Master in Sound and Music Computing” in Universitat Pompeu Fabra (Barcelona), under the supervision of Daniel Arteaga and Davide Scaini. The thesis builds on the spatial wavelet format developed in Ref. [1].

Regardless of the fact the supervisors are current Dolby employees, Dolby has no involvement with the thesis, which it is exclusively based on publicly available academic references. The IP of the master thesis belongs in its entirety to Samuel. The master thesis will be defended before 14th Sept 2022.

So far, Samuel has developed the following parts:

* A method to build an arbitrary wavelet representation on an arbitrary mesh.
* A modification of the lifting scheme better suited for spatial audio.
* An implementation of the spatial wavelet format using the two methods above.
* A particularization of the spatial wavelet format for 7.1.4 layouts.
* A method to optimize the wavelet filters for optimal playback reproduction.

In addition to that, Samuel plans to include, among other things, the following as part of his thesis:

* A better normalization of the reproduction channels.
* A subdivision mesh that naturally interpolates between common surround formats (e.g. 9.1.6, 7.1.4, 5.1.2)
* An objective evaluation of the results based on psychoacoustical indicators.
* A subjective evaluation of the results based on subjective user tests.

Possibly, the code resulting from the master thesis will be published on a public repository and a scientific publication will be prepared.

[1] D. Scaini and D. Arteaga, “Wavelet-Based Spatial Audio Format” J. Audio Eng. Soc., vol. 68, no. 9, pp. 613–62