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**EASA Member of Class III**

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### **Title: From Quantum information to musical semantics.**

Although music and quantum theory seem to be far apart worlds, a form of quantum semantics can be successfully applied to an abstract analysis of musical compositions. The basic idea of this quantum musical semantics is the following: musical ideas that are possible interpretations of musical phrases written in a given score can be formally described as pieces of quantum information: states of quantum objects that can store the information in question. In this way, the quantum-theoretic formalism allows us to represent the ambiguities, the allusions and the holistic features that characterize musical languages.

An important aspect of music is its capacity of evoking some extra-musical meanings: subjective feelings, situations that are vaguely imagined by the composer or by the interpreter, real or virtual theatrical scenes, which play an important role in the case of lyric operas and of Lieder. The interplay between musical ideas and extra-musical meanings can be naturally represented in the framework of our quantum musical semantics. Extra-musical meanings can be dealt with as examples of vague possible worlds, where events are generally indeterminate, as happens in the quantum world. To what extent can some musical themes or musical figures be interpreted as musical metaphors for some extra-musical meanings? We will discuss this question by referring to some interesting examples that can be found in the world of Lieder.

#### References

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