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PIEZOMUSICOLOR – A NATURAL FORM OF TECHNOLOGIC GRAPHIC-ART FOR HUMANITY

*In efetto luomo [...] sidjmostra essere cosa djvjna per-
che dove lanatura finjssce il produrre lesue spetie lomo
qujvj comj[n]ca colle cose naturali affare collaiutorio des-
sa natura infinjte speti[e]*

*Actually man demonstrates himself to be a godlike
thing, because where nature finishes to produce its spe-
cies, there man begins with natural ingredients, with the
help of nature to make infinite species.*

Leonardo da Vinci, Disegni anatomici,
Biblioteca Reale di Windsor, n. 72 verso

Abstract: An analogic PiezoMusiColor_vibro-chromo-phonoscope (PMC_KIT), al-
lowing to disclose the visual and vibro-tactile dimensions of sounds has been developed. Its
applications are presented in

– EDUCATION

Learning by playing – An interactive teaching of the concepts and laws of nature up-
on which the PMC_KIT is based

– ENTERTAINMENT

The full (audio, visual, tactile) immersion in the world of sounds captures hypnoti-
cally our attention.

– SOCIAL INTEGRATION

The problem of persons affected by hearing loss or cognitive deficiency has been
tackled with promising results.

Key words: *PiezoMusiColor, vibro-chromo-phonoscope, education, ertainment, social in-
tegration*

The presentation was followed by musical performance.

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In the history of culture very few phenomena have occurred capable to attract and to intrigue not only artists and musicians but also humanists, scientists and laypersons. To listen to music while perceiving its patterns and colors is one of these phenomena.

This aspiration goes back to the time of Isaac Newton, who conceived a parallel between sound waves and light waves¹. Nowadays the proposed solutions usually focus on computer graphics programs: transcoders from musical-notes into colors are incorporated in each computer. However the results often exhibit repetitive and predictable structures and are criticized by musicians, painters and art critics for the underlying subjective algorithm.

The Musicolor technology is not a miracle of informatics. It is a *natural* form of multimedial graphic-art delegating to the music of all genres – and/or to the voice – the function to trigger and control a process producing an analogic self-portrait of sound. Activating a natural process the music manifests its second nature: an endless stream of patterns displaying, with rainbow colors, rhythm, timbre and intensity of sounds.

Unlike painting and architecture – static arts defined in two and three space dimensions respectively –, music is an art defined in the time domain. In the early years of the last century, futurist painters disclosed the time dimension to the static canvas of the pictorial space. In a manner complementary to Futurism, Musicolor discloses the chromatic and space dimensions to the dynamics of the times of sounds.

Recently the third nature of music – its vibro-tactile dimension – has been revealed by an innovative, *analogic* PiezoMusiColor vibro-chromo-phonoscope (PMC_KIT), The PMC_KIT, developed by our international, interdisciplinary team, produces the visual and tactile self-portrait of sounds and music of all genres.

During the Montenegro Conference, several examples of applications of this innovative technology have been presented in the following fields.

– EDUCATION

The PMC_KIT makes possible an interactive teaching of fundamental concepts and principles of natural sciences – *learning by playing*. An analogic transcoding of music and voice gives rise to a faithful selfportrait of music in the audio-visual and vibro-tactile dimensions of sound: a succession of visual forms, sometimes chaotic and unpredictable, as might be the eddies of a river or the color of the flame, synchronically tuned with two vibrating mouses. For teaching purposes, the joyful sensations produced by the synaesthetic perception of sound trigger curiosity about the wide variety of concepts and laws of nature upon which the operation of the PMC_KIT is based.

¹ ...May not the harmony and the discord of colors arise from the proportions of the vibrations propagated through the fiber of the optic nerve into the brain, as the harmony and discord of sounds arise from the proportion of the vibrations in the air.

– ENTERTAINMENT

The fantastic symphony of visual forms, obtainable by Musicolor without the help of a computer, enhances the emotional impact of music by stimulating a synaesthetic tension aiming to correlate the sensory tactile channel with hearing and sight: a challenging, hypnotic and full immersion in music never experienced before.

– SOCIAL INTEGRATION

With the increase of the lifetime expectancy the problem of social integration of persons with physical, cognitive, mental, sensory or emotional disability becomes more and more serious. According to our experience with persons affected by hearing loss or cognitive deficiency, the PMC_KIT is a promising and efficient tool.

In conclusion, our ambitious dream is to provide humankind with a new, natural and pleasant way to enter in the world of sounds and to enjoy music.

It is impossible to present the potentiality of the PMC project in written form. Our readers are encouraged to consult the site reference: www.piezomusicolor.it

