HANIF MIRZA#, MAHMOOD HOSSAIN, and TADASHI KATO, Computer Science, Math, and Physics Department, Fairmont State University, Fairmont, WV, 26554, Behavioral Science Program, Fairmont State University, Fairmont, WV, 26554. **Analyzing psychophysiological effects of music using coherency of multichannel EEG.**

The goal of this project was to identify the existence of psychophysiologically significant levels of coherency between the activities in different areas of the brain triggered by different types of music. This study was performed using Electroencephalogram (EEG) data collected from human subjects who were exposed to three different types of instrumental music (guitar, piano, and gyil) each with and without resonance, measured at eight frontal and temporal lobes of the brain. Discrete Fourier Transformation (DFT) was used to convert the time-domain EEG signals into frequency domain and the frequency signals were separated into the alpha (8-12 Hz) and the beta (13-30 Hz) frequency bands that are known to be associated with the relaxed and active states of the brain respectively. The coherency between the converted EEG signals were computed for different lobes of the brain and data mining was used to investigate how different types of music can affect the coherency between the EEG signals in different parts of the brain.

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