

Quasi-Periodicity of Tonic Intervals in Octave and Innovation of Themes in Music Compositions

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Abstract : Quasi-periodicity of frequency intervals observed in Shruti based Absolute Scale of Music has been used to graphically identify the Anchor notes 'Vadi' and 'Samvadi' which are nodal points for expansion, elaboration and iteration of the emotional theme represented by the characteristic tonic arrangement in Raga compositions. This analysis leads to defining the Tonic parameters in the octave including the key-note frequency, tonic intervals' anchor notes and the on-set and range of quasi-periodicities as exponents of 2. Such uniformity of representation of characteristic data would facilitate computational analysis and synthesis of music compositions and also help develop noise suppression techniques. Criteria for tuning of strings for compatibility with placement of frets on finger boards is discussed. Natural Rhythmic cycles in music compositions are analytically shown to lie between 3 and 126 beats.

Keywords : absolute scale, anchor notes, computational analysis, frets, innovation, noise suppression, Quasi-periodicity, rhythmic cycle, tonic interval, Shruti

Conference Title : ICME 2015 : International Conference on Musicology and Ethnomusicology

Conference Location : Amsterdam, Netherlands

Conference Dates : May 14-15, 2015