

## Poincare Plot for Heart Rate Variability

**Authors :** Mazhar B. Tayel, Eslam I. AlSaba

**Abstract :** The heart is the most important part in any body organisms. It effects and affected by any factor in the body. Therefore, it is a good detector of any matter in the body. When the heart signal is non-stationary signal, therefore, it should be study its variability. So, the Heart Rate Variability (HRV) has attracted considerable attention in psychology, medicine and have become important dependent measure in psychophysiology and behavioral medicine. Quantification and interpretation of heart rate variability. However, remain complex issues are fraught with pitfalls. This paper presents one of the non-linear techniques to analyze HRV. It discusses 'What Poincare plot is?', 'How it is work?', 'its usage benefits especially in HRV', 'the limitation of Poincare cause of standard deviation SD1, SD2', and 'How overcome this limitation by using complex correlation measure (CCM)'. The CCM is most sensitive to changes in temporal structure of the Poincaré plot as compared to SD1 and SD2.

**Keywords :** heart rate variability, chaotic system, poincare, variance, standard deviation, complex correlation measure

**Conference Title :** ICRMI 2015 : International Conference on Radiology and Medical Imaging

**Conference Location :** London, United Kingdom

**Conference Dates :** September 25-26, 2015