

Abstract Submitted  
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**Excursion time distributions of heartbeat time series** ISRAEL REYES-RAMIREZ, LEV GUZMAN-VARGAS, Instituto Politecnico Nacional - UPIITA, Mexico — We present a study of heart interbeat time series based on excursion time distributions from healthy subjects and patients with heart failure. We describe some differences between these groups by means of the calculation of the characteristic time scale of the exponential distributions for stationary segments. We also compare day-night periods for both groups. In particular, we find that the characteristic time scale associated to the healthy group is slightly smaller than the heart failure group, indicating that large excursions are more probable under pathologic conditions. When day-night period are compared, we observe that night records lead to a smaller time constant than day records. Moreover, we simulate correlated noises with power spectrum of the form  $S(f) \sim f^{-\beta}$  with  $0 < \beta < 1$ , to detect changes in the excursion time distributions with the presence of long-range correlations. Finally, we discuss our results in the context of heartbeat dynamics.

Lev Guzman-Vargas  
Instituto Politecnico Nacional, Mexico

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