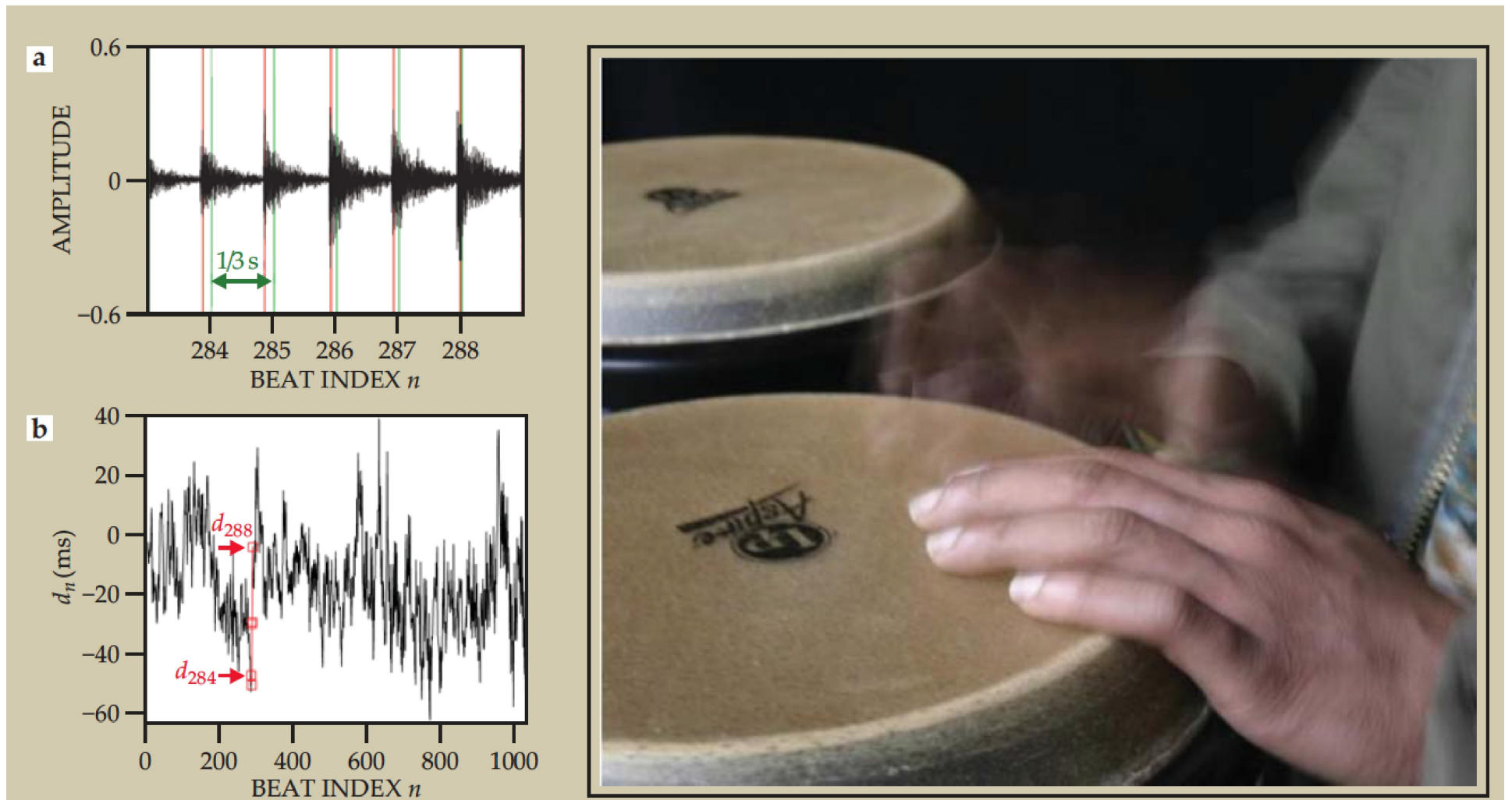


Boston University Physics Colloquium



When the Beat Goes Off

Although human musical performances represent one of the most valuable achievements of mankind, the best musicians perform imperfectly. Musical rhythms are not entirely accurate and thus inevitably deviate from the ideal beat pattern. Nevertheless, computer generated perfect beat patterns are frequently devalued by listeners due to a perceived lack of human touch. Professional audio editing software therefore offers a humanizing feature which artificially generates rhythmic fluctuations. However, the built-in humanizing units are essentially random number generators producing only simple uncorrelated fluctuations. The nature of temporal fluctuations in complex human musical rhythms has never been scrutinized as yet. Here, I will show that long-range correlations are an inevitable natural companion of both simple and complex human rhythmic performances. Moreover, it will be demonstrated that listeners strongly prefer long-range correlated fluctuations in musical rhythms. Thus, the favorable fluctuation type for humanizing interbeat intervals coincides with the one generically inherent in human musical performances.

Holger Hennig
Harvard University

October 2, 2012 (Tuesday) at 3:30pm (Refreshments at 3:00pm)

SCI 109, Metcalf Science Center, Boston University

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