

# **A Family of Shock Models for Degradation Processes**

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## **Abstract**

Many systems experience gradual degradation while simultaneously being exposed to a stream of random shocks of varying magnitudes that eventually cause failure when a shock exceeds the residual strength of the system. I'll present a family of shock-degradation processes that describe this failure mechanism. The time to failure for this type of stochastic process is a first hitting time (FHT) of the zero-strength threshold. Statistical properties and examples of the degradation process will be derived.