



**TIFR Centre for Interdisciplinary Sciences,  
Narsingi, Hyderabad 500075**

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**Seminar**

**How throwing made us human**

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Hunting, by throwing projectiles, played a key role in human evolution. What makes humans so good at throwing fast? Through measurement of human throwers, computer optimization, and experiments on a throwing machine, I will show how the morphology of the human body is central to our throwing ability. The fastest way to throw is like a baseball pitcher (or a cricket fielder). Driven by torques at the hip, elastic energy storage at the shoulder, and kinetic energy transfer across multiple segments, it resembles an elastically loaded whip. Our work identifies the elements of our body that make such a strategy possible.

***Friday, Nov 29<sup>th</sup> 2013***

***4:00 PM (Tea/Coffee at 3:30 PM)***

***Seminar Hall, TCIS***