

Talk title: Introduction to the Physics of Baseball Pitches

Abstract: The act of the pitcher throwing the ball to the batter is the most essential element in the game of baseball. Since the inception of the game in the 1800s, players have described different characteristics of pitch "movement." Though initially a qualitative topic, the last three decades have seen an explosion of quantified pitch trajectory data. Pitch movement measurements are now ubiquitous in conversations among players and coaches. This presentation is an introduction to the physics of pitch movement given to players, coaches, and scouts, and it assumes no physics background. The goal is to connect abstract scientific concepts to the everyday experience of non-technical experts.

Bio: I am a Lead Quantitative Analyst for the Philadelphia Phillies of Major League Baseball. My job is to devise, execute, and communicate the results of research using quantitative baseball data (ball and bat trajectories, joint tracking, and more traditional "box score" statistics) that will lead to a better understanding of the game and a competitive advantage for the team. I previously worked with the Minnesota Twins baseball team for three years. I graduated with a Bachelor's Degree in Physics from the University of Chicago in 2014 and a PhD in Physics from Harvard University in 2021. My graduate dissertation described the application of models from statistical physics to problems in evolutionary biology, and I collaborated with computational biologists and applied mathematicians in my research. I grew up in Los Alamos, New Mexico, and I interned at LANL for a few summers during high school and college.