NOTE: We received the following explanation from Dave Zavagno about the way that Universal Systems studies baseballs.

Historically major league baseball has denied that the baseball has changed. After watching years of suspicious results and unexplainable events we decided nearly a decade ago to look seriously at the baseball with one of our petroleum engineered CT scanners specifically designed to characterize core samples. These scanners have a proprietary software analysis package for post processing data for evaluative services.

Computed Tomography or CT scanning is a method whereby x-rays are passed through a sample material and cross section images of the sample are produced. CT scanning is valuable because it offers the capability of rapid, nondestructive visualization and analysis of core materials. CT scanning is currently utilized within the petroleum industry to identify and evaluate internal structural characteristics and discontinuities of core materials and fluid distribution within core material systems. The use of CT scanning and related technology to view and characterize reservoir core materials is significant and increasing.

Universal Systems is the world-wide leader supplying both CT and NMR systems for petrophysical characterization. By specifically tuning a CT scanner to a baseball we are correctly able to characterize the changes to the baseball through time as well as identify material replacement. Rawlings is the exclusive manufacturer of baseballs for the Major League's and states the core of the baseball has not changed since 1930. In 1992 we correctly identified the historical changes to the core of the baseball and presented this information. Unfortunately at that time there was very little interest in our results.

In our research we found that the current analysis and testing methods employed by Rawlings were suspect. The Major League measurement of liveliness is flawed because the test velocity of 58MPH is much lower than a pitcher's fastball of 90MPH and bat speeds approaching 100MPH. Currently baseballs are shot off an ashwall at 58MPH and the restitution is measured or the COR.

When a slugger connects for a home run the violence of the ball bat collision in just 1/1000's of a seconds compresses the hardball to about 50% of its original diameter. Tests of the ball in the league official test measures the liveliness of only the outer part of the sphere, not the deep center. That means someone could tinker with the core to make the ball more elastic and lively without causing it to fail current testing standards. One could design a ball that would hardly bounce at all at regular speed but if you hit it hard it would fly farther than a regular baseball.

Our research clearly indicates that the core of the baseball has evolved over the past years and it's the mathematical impact of these improvements that is of significant interest. What we have been able to quantify and qualify in general is a shift from a very hard centered baseball to a more rubberized center with a band or stop. It's the understanding of how the core of the baseball has been enhanced and what would be the subsequent
result of these changes that is of major interest.

Editor's note: According to the USA Today article, Rawlings currently tests them at 85 miles per hour though other articles have said 58 miles per hour. The "Standard Test Method for Measuring the COR of Baseballs and Softballs" of the American Society for Testing and Materials, ASTM F1887-98 10-JUN-1998, states that the balls should to shot off at 60 miles per hour. However, as Zavagno observes all these are significantly lower than a pitcher's fastball.