Recent Advances in the Measurement of π

Dr. Roy Lisker
Precision Measurements Lab
University of Colorado, Boulder, Co.

ABSTRACT

Dissatisfaction with conflicting mathematical theories as to the correct value of π have led us to an empirical method for deciding this matter. Recent innovations in technology have enabled us to solve a problem that was known already to the ancient Greeks. Our method gives π to 40 places. Quantum effects prohibit any greater accuracy; this fact alone suffices to demonstrate the incorrectness of calculations made on the basis of so-called pure mathematics .

INTRODUCTION

This report describes join work with Torvald Schmidt, Aram Chang and Srinivasa O'Banion at the Stark Laboratories for Precision Measurements .It has long been recognized that mathematical methods are, in and of themselves, insufficient for the determination of the exact value of π . Any number which is in such heavy demand from practical applications in so many domains of technology can only be ascertained by empirical means.

Mathematics is dubious at best. To take one of the best known examples, the celebrated " Last Theorem" of Pierre de Fermat has still not been proven, although it was stated as long ago as 1637. Yet hundreds of proofs of this theorem, some of them by otherwise famous mathematicians, have been advanced. Dr. Andrew Wiles of Princeton now claims to have a proof, but not many people agree with him. That so

few admit to understanding what he has done is, in itself, sufficient evidence for the suspicious character of his boasts.

As a matter of fact, we do not even need a mathematical theory in order to measure π accurately. We can measure it anytime we run across a circle or a sphere that is more perfect than we dare hope. The perfection of circles and sphere cannot, however, exceed the quantum limit. Our best theoretical projections tell us that any calculation of π must break down after about 40 places.

STRATEGY

Our experiments were carried out over a 6 week period from April 1st to May 16, 1995. Blobs of molten iron were tossed into the field of a wide but weak magnet that poised them mid-way between the apparatus and the floor.

The blobs were then molded into the form of perfect spheres by the action of dozens of banked lasers focused on the object's center of gravity.

The weight W of the ball was then determined by measuring the magnetic field strength needed to keep it hovering above the floor. The diameter D was obtained through the use of a cat-scan. Since the density, Δ, of normal iron at room temperature is known, the volume V of the ball could be calculated from the well-known formula:

$$V = W / \Delta = (4/3)\pi R^3 = \pi D^3 / 6$$

from which we obtain, finally

$$\boxed{\pi = 6V / D^3}$$

Report on the Experiment

The execution of the experiment was delayed for about a year, as it was necessary to engage in a considerable amount of political lobbying beforehand. In fact, the city of Boulder had already entered into an agreement with a private contractor, Doyle & Brs., to throw up a 60-story

skyscraper a few blocks away from the Stark Labs. Had such a venture been allowed to proceed the local gravitational constant would have been significantly altered, so much so that all our intricate computer calculations, which had already used up most of our NSF grant , would have become worthless.

By dint of our persistence, we were able to persuade the NSF to pressure the Justice Department to mount an investigation into corruption and fraud in the construction industry in Boulder, Colorado. Our cause was given a further boost through a traveling audio-visual presentation tour shown to physics departments on 50 campuses. The mayor's office quickly caved in after that : the skyscraper has been moved out of town about two miles.

Our next challenge was to locate someone experienced with tossing colloidal globs into the air. After a protracted search we ended up hiring a chef , Jeff Slocum, from the International House of Pancakes in Colorado Springs . Altogether, Jeff scooped up and tossed over 2,000 pre-spheroid globs into the magnetic field. His extraordinary services to Science have been commended by a plaque that hangs on the door of the men's room in the International House of Pancakes where he works.

A major miscalculation made at the beginning of the experiment set back our plans another 6 months. When we started out, no-one knew the relative field strengths of gravitational and magnetic fields, and we foolishly placed the conversion factor between Newtons and the inductive coercivity of the magnetic field on the wrong side of the equation. When the apparatus was switched on, the power of this field was such that every metallic object within a city block radius was sucked through the walls of the frame house into the room. Not only were the Stark Labs were severely damaged, but Srinivasa O'Banion spent a year in the hospital. It took courage on our part to petition the NSF for

another grant and, it must honestly be said, courage for them to give us one, but we were able to resume our operations in the last weeks of December, 1994.

Srinivasa's hospitalization in fact ultimately worked in our favor. His many skull fractures necessitated his being passed through the cat-scan cylinder almost every day. As, lying face upward on the conveyor belt, he was moved under the scanners, he ,(with the blissful smile of someone who is releasing a pigeon to freedom), held aloft one of the iron balls from the experiment.These were brought onto his ward hidden in flower pots.

The hospital is now suing us to recover the fees they claimed to have lost because we hadn't told them what we were up to. We managed to measure the diameters of 639 balls before they caught on. It must be admitted that one of the reasons that he was put through so many cat-scans was because the doctors could not figure out the provenance of the enormous tumor that kept on showing up on the computer monitors. The case is now in its third month in federal court, and is certain to bankrupt myself, all my co-workers, and the Stark Labs as well, which were limping along in any case because of so many recent federal cuts.

After averaging calculations over these 639 virtually perfect iron spheres, the following figure was obtained for π :

$$\pi = 3.\underline{2}\underline{8}1592653589793234\underline{4}46264338327950288\underline{9}1971$$

The underlined figures are those which differ from those obtained through current mathematical schemes. The correlation is rather close: a difference in only 4 figures out of a total of 41. Observe, however, that a 10% difference must be considered significant. This demonstrates quite well, we believe, how far off- base generally accepted methods have been in the calculation of this important constant of nature.

Anyone wishing to send contributions to our legal defence fund, or with suggestions about ways of improving our methods, are encouraged to contact:

Dr. Roy Lisker

PO Box 243 Middletown, CT 06457

860-346-6957