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Canadian Scientists Claim World's Largest Pi Number; Martyn Williams
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Canadian Scientists Claim World's Largest Pi Number 10/18/95

BURNABY, BRITISH COLUMBIA, CANADA, 1995 OCT 18 (NB) -- Just 2 months after computer scientists at the University of Tokyo claimed a new world record by calculating pi -- the ratio of a circle's circumference to its diameter -- a team of mathematicians from **Simon** Fraser University in Canada have broken the record by working with the Japanese record holders.

Just a few months ago, the world's most accurate calculation ran to 2.2 billion decimal places, the Japanese trumped that by working the figure out, generally written as 3.14, to 3.22 billion decimal places.

The SFU team used a HITAC S-3900/480 vector supercomputer and 56 hours to calculate PI to 4,294,967,286 decimal places. The previous record used a pair of HITAC S-3800/480 computer and ran for almost 37 hours. To give some perspective on the number, the Canadian scientists say a print-out of the number, expressed at six digits per centimeter, would stretch more than 7,000 kilometers.

To break the previous record, brothers Jonathan and Peter Borwein, of SFU's center for experimental and constructive mathematics, wrote a new algorithm - a computer formula used to calculate the figure.

Not content with breaking just one record, Peter Borwein, working with SFU colleague Dr. **Simon Plouffe**, and Dr. David Bailey of the National Aeronautics and Space Administration's Ames Research Center (NASA-Ames) in California, has calculated the 40 billionth binary digit of pi, which is 1.

The second record skips all the digits in between and works out just the 40 billionth. Peter Borwein, one of the scientists, explained, "It has long been believed that if you want to compute the 40 billionth digit of pi, you have to compute all the preceding digits first. What we're doing is picking off the 40 billionth digit by itself. We don't know or see what's in-between."

Continued Borwein, "The beauty of all this is in the new software and mathematics we've developed. They allow calculations that previously required supercomputers to be performed on quite modest workstations. I predict some smart kid working on a home computer will now use these methods to compute the 100 billionth digit of pi in the very near future."

Details of the methods and formula used are available on the World Wide Web at <http://www.cecm.sfu.ca/~pborwein>.

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