Progress finally being made on understanding ABC proof

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(Phys.org)—A team of mathematicians met last week at Kyoto University in another attempt to understand a proof unveiled almost four years ago by Shinichi Mochizuki—one that he claims offers a proof of the ABC conjecture. If the proof turns out to be verifiable, most in the field believe it will be a truly historical event.

The ABC conjecture involves expressions of the form $a+b=c$ and connecting [prime numbers](#) that are factors of b with those that are factors of c. To the uninitiated, the problem might seem simple, but great minds have put in their best effort to come up with a solution to no avail—at least not until 2012 when [Mochizuki posted a four-series proof](#) on his website along with a claim that after a decade of work he had finally found the solution. Others in the field took notice because Mochizuki is well-known and respected in the math field—few believed he would post a proof of the conjecture if he did not believe he had solved it.

The proof ran into problems right away, however, because Mochizuki had come up with a new type of math that allowed for creating such a proof—and because he is a recluse, refusing to leave the safe confines of his place of work, Kyoto University. Things did not improve much late last year when [a group of mathematicians met at Oxford to discuss the proof](#)— Mochizuki did not join them of course, which made the meeting very nearly moot.

But now, at least according to some who have attended the latest meeting to discuss the proof at the Inter-universal Teichmüller Theory Summit at Kyoto University, some progress has been made. Mochizuki has been attending the conference, presenting his proof and answering questions. He has also reportedly become more cooperative and has been offering outlines and other forms of guidance—passages have even been highlighted that offer the most insight. Some attendees have also suggested that the new information gained has shown that effort to understand the proof will likely payoff someday. But not very soon—despite the progress most at the conference apparently came away believing that it will take at least a few more years of work by many other mathematicians to understand the proof and then to either agree that it is valid or to reject it as another failed attempt.