

The ABC Conjecture and Beyond (5)

Quality of ABC triples (A, B, C)

- $Q = \log(C)/\log(R)$ **Quality**
- (Baker) $Q < 1.75$
- (ABC) $Q < 1+K$ except for finitely many (A, B, C) .
- Very difficult to find triples with large quality
 $(A, B, C) = (2, 6436341, 6436343)$
 $Q = 1.6299$ (**World Record**)

The ABC Conjecture and Beyond (6)

- In 2012, Mochizuki released a series of groundbreaking papers (>500 pages) claiming the solution of ABC Conj.
- It is based on the ***Inter-universal Teichmüller Theory***, a completely new theory of mathematics developed by him in the past years.



Shinichi
Mochizuki
(1969-)

Summary of Week 5

- Points on Elliptic Curves;
Group Law, Mordell's Thm, Rank
- Zeta Functions (L-functions), Modularity
- BSD Conjecture
- ABC Conjecture; ABC triples, Radical,
Mochizuki's groundbreaking work

Conclusion

- Prime numbers have been studied for more than 2000 years. Many mathematicians obtained many great results.
- Still, there are many interesting and important problems.
- Let's challenge unsolved problems and discover new theories! Good luck!



Euclid of
Alexandria
(fl. 300BC)