

Editorial

In Memory of Professor Peter Gavin Hall (1951–2016)

In the past, the Abel Prize, which is generally regarded as the mathematician's Nobel Prize, has usually been awarded for a life-time of achievements. This year (2016), however, it is awarded singularly for the solution by Andrew Wiles of a 350-year-old problem in number theory that has, until 1995, resisted all manner of attacks. And somewhat belatedly too — 20 years after its solution and long after more than 10 awards and prizes have already been bestowed on Wiles. The problem in question ("Fermat's Last Theorem") has a chequered and dramatic history. It has arguably attracted the largest number of wrong proofs from amateur and professional mathematicians alike. It is probably the first mathematical problem for which solution a huge prize was offered (long before the million-dollar Millenium prize problems were proposed). The great German mathematician David Hilbert once referred to that problem as a goose that laid the golden eggs because he could use the interest from the unclaimed prize money to invite mathematicians to Göttingen. Other than these financial eggs, various earlier attempts to solve it had laid mathematical eggs that hatched and spawned new ideas and areas in algebra and geometry.

Recently, there was much publicity on the efforts of a group of mathematicians to unravel the 500-page work of Shinichi Mochizuki of Kyoto University. They had gathered at the Mathematics Institute of Oxford University in December 2015 to conduct a workshop to understand a new theory (called "Inter-Universal Teichmüller Theory" by its originator) that purports to lead to, among other important consequences, a proof of another hard problem known as the "abc conjecture" about integers and their prime divisors. If a strong effective form of the abc conjecture is correct, then a short and easy proof of Fermat's Last Theorem can be given, in contrast with the famously difficult proof of Andrew Wiles. In the meantime, there is still no consensus on the correctness of Mochizuki's work, anyway not until a second workshop to be held in the Research Institute for Mathematical Sciences in Kyoto in July 2016.

This issue features a short article on the geometric connections of magnetic fields and a somewhat long expository survey of some unexpected ramifications of knot theory. It also highlights two well-known mathematicians

and their work — Yum-Tong Siu of Harvard University and Ramalyengar Sridharan of Tata Institute of Fundamental Research. In a lighter vein, two of our Iranian colleagues share their thoughts on how to get your paper rejected, surely and inevitably.

We would like to express our sadness on the premature passing of a dear and beloved friend, Professor Peter Gavin Hall of University of Melbourne on January 9, 2016 after a long battle with leukemia. As you may have read in earlier issues of this newsletter, he took time to interview his Australian colleagues (J Hyam Rubinstein, Gustav Isaac Lehrer, Anthony John Guttman, Ian Hugh Sloan) and to contribute some deep and insightful interview articles. We would like to dedicate this issue to his memory. We will miss him dearly.

Y K Leong
Editor

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