

# Proceedings of the 2014 Maui and 2015 Qinhuangdao conferences in honour of Vaughan F.R. Jones' 60th birthday

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## Editors' introduction

Vaughan Jones has made landmark contributions to mathematics: indeed, he is a founder of the field of quantum topology, which can conveniently be described as “the Jones polynomial, and everything that came after”.

While the Jones polynomial may be his most widely known work, it grew out of his fundamental work on von Neumann algebras. After classifying outer actions of finite groups on the hyperfinite  $II_1$  factor, Vaughan proved his famous index rigidity theorem: if  $N \subset M$  is a  $II_1$  subfactor, then the index lies in the range

$$\{4 \cos^2(\pi/n) \mid n \geq 3\}.$$

This result followed from analyzing the Temperley-Lieb-Jones algebras, in which he found his famous representations of braid groups.

Throughout this extraordinary career, Vaughan has always generously shared his ideas, helping to build a vibrant research community. His generations of graduate students have gone on to make substantial contributions, in quantum groups, subfactors, tensor categories, and conformal field theory, amongst others.

Vaughan's Friday afternoon seminar at Berkeley attracted a regular stream of interesting visitors, and always concluded with a popular and convivial beer and pizza. Since then he's moved on to Vanderbilt, where he has trained a new crop of successful students.

In 2014 and 2015 a pair of conferences celebrated his (approximate) 60th birthday. The first of these was in Maui, Hawaii (a traditional site for hunting exotic subfactors), and the second was in Qinhuangdao, China. This proceedings volume, with articles contributed by participants from both of these conferences, reflects the breadth of Vaughan's mathematical interests, from statistical mechanics to skein theory to free probability.

The volume is being published as part of the Proceedings of the Centre for Mathematics and its Applications, based at the Australian National University; two of his former students now work there, and Vaughan has visited many times over the years.

As the editors, and on behalf of all the contributors and participants, we'd like to thank Vaughan for creating such a great community to work in. We're all looking forward to the next big birthday!

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