universität wien
Fakultät für Mathematik

Mathematisches Kolloquium

Mittwoch, 23.Mai 2018
HS 06

EINLADUNG

Thomas Hales
(University of Pittsburgh)

"Computer Verification and Math"

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Abstract:
The use of large-scale computer calculations in the traditionally paper-and-pencil discipline of mathematics has prompted researchers to reevaluate the whole idea of what makes a proof. A conjecture by Kepler in 1611 asserts that the densest arrangement of spheres is the familiar pyramid shape used to stack oranges at fruit stands. In 1998, Samuel Ferguson and I announced a proof of the conjecture, consisting of nearly 300 pages — plus at least 40,000 lines of custom computer code. The journal Annals of Mathematics assigned a dozen referees to check that there were no errors anywhere in this proof. But when the proof was finally published, the editor conceded that referees could not certify its correctness "because they have run out of energy to devote to the problem." In response, I organized a project to have computers referee the correctness of computer calculations. Unlike humans, automated referees do not run out of energy.
This talk is intended for a general audience.

14.00 Uhr: Vortrag

Herwig Hauser
Christian Krattenthaler