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**Thomas C. Hales\*** ([hales@pitt.edu](mailto:hales@pitt.edu)), Math Department, University of Pittsburgh, Pittsburgh, PA 15260. *The Kepler Conjecture after 400 years: from conjecture to formal proof.*

In 1611, J. Kepler asserted that no packing of congruent balls can have density greater than the familiar pyramid arrangement that is used for cannonballs at war memorials. This year we celebrate the 400 year anniversary of the publication of the booklet that contains Kepler's assertion. By now, most parts of the proof of Kepler's assertion have been encoded as a formal proof. This talk will trace the transformation of the solution of the Kepler conjecture, from a conventional proof that relies on computer calculations, towards a machine-checkable formal proof. (Received September 15, 2010)