

Math's Bubbling (not!) Over

Glen Whitney, StuDiOInfinity.org

In 1887, William Thomson, Lord Kelvin made a shrewd guess about the shape that numerous bubbles all the same volume would adopt when clustered together. He thought they would end up all identical, with six square facets and eight hexagonal ones. For slightly over a century, nobody was able to validate or refute Kelvin's guess.

Then in 1994 Irish physicists Denis Weaire and Robert Phelan discovered an elegant arrangement even more attractive to the bubbles, bursting Kelvin's claim. Still, in the quarter century since that time, nobody has been able to establish that this Weaire-Phelan foam, as it's called, is truly the bubbles' ideal state.

Join the ICERM community of colleagues and friends to build a human-scale model of Weaire and Phelan's surprising discovery. We hope you'll gain insight and appreciation for the surprising depth and beauty of everyday phenomena, that in this case led to a riddle that may stump and inspire problem-solvers for another 107 years.