Triangulated ternary disc packings that maximize the density

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Abstract

What are the densest packings with three sizes of discs? Triangulated packings are those where each hole is bounded by three tangent discs. When such packings exist, they seem to be the best candidates to maximize the density. There are 164 pairs (r,s) 1> r> s allowing triangulated packings by discs of radii 1,r and s. With the use of the computer, we are developping a method to show that in all these cases the density is maximized by a triangulated packing.

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