Penta-graphene and the geometric three-dimensional structure of prime numbers

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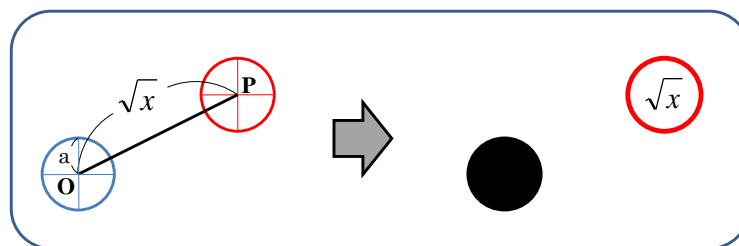
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Abstract

Length $\sqrt{x}$, that the x is a prime number , form the center O to the another circle center can be set in equilateral triangle-square model composed of circles with diameter a. There are various possible values of x depending on a. Among them, x must have some special structure to be a prime number. One possibility is penta-graphene.

Instruction

It is known that a dodecahedron composed of regular pentagons is not a space-filling structure. However, a space-filling structure consisting only of regular pentagons has recently been discovered by a group at Tohoku University in Japan.

Structural Model

Figure of penta-graphene

Conclusion

Further elucidation of penta-graphene and its relationship to prime numbers is required.

Reference

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2. ペンタグラフェン（正五角形による空間タイリング）（sakura.ne.jp)