A Mathematical Exploration of Virus Capsid Structures

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April 22, 2014

Abstract

This paper explores the mathematics behind the icosahedral virus capsid structure... more to come.

1 Biological Background

Things to include:

- Caspar and Klug history
- helical and icosahedral shapes
- theory of quasi-equivalence
- T-number concept
- P-number (maybe)

2 Rotation Groups

This section would discuss rotational symmetry, evaluate possible shapes and explain why the icosahedron was the initial optimum shape.

3 T-Numbers

- Prove $T = Pf^2$ where $P = h^2 + hk + k^2$ with $GCD(h, k) = 1$ and $f \in \mathbb{N}$

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