

1176-51-171

**Dami Lee\*** (damilee@uw.edu) and **Charles Anthony Camacho**. *Infinite polyhedral surfaces that cover Fermat quartic and Klein quartic.*

A classical question in geometry is whether surfaces with given geometric features can be realized as embedded surfaces in Euclidean space. In this talk, we study two infinite polyhedral surfaces in  $\mathbb{R}^3$  that are covers of well-known Riemann surfaces – the genus three Fermat quartic and the genus three Klein quartic. The former case is a triply periodic polyhedral surface whose quotient under the translation lattice yields Fermat quartic. On the other hand, the latter case yields an immersed, but not embedded surface, that covers Klein quartic. It is unknown whether such an embedded surface even exists.

We will discuss how the symmetries of the polyhedral surfaces allow us to construct hyperbolic structures and various translation structures on each surface. (Received January 21, 2022)