

IDEAL TRIANGULATIONS - GEOMETRIC STRUCTURES AND PROPER ESSENTIAL SURFACES

J. HYAM RUBINSTEIN

(Joint work with Ensil Kang)

This is joint work with Ensil Kang (Chosun University). We have been studying when an ideal triangulation admits an angle structure. A necessary and sufficient condition (obstruction) has been found to solve this first step in Casson's approach to finding hyperbolic structures by solving the hyperbolic gluing equations. Another topic is the use of spun normal surfaces to represent proper essential surfaces. We have an existence result, for when incompressible and boundary incompressible surfaces can be isotoped or homotoped to be spun normal. Using this, one gets interesting algorithms to decide whether a given boundary slope for a given knot or link can be represented by such a surface. Finally this also leads to a fast algorithm to decide if a closed or proper surface is incompressible.

UNIVERSITY OF MELBOURNE