

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Ring Correlations in Two-Dimensional (2D) Random Networks

MAHDI SADJADI, M. F. THORPE, Arizona State Univ — Amorphous materials can be characterized by their ring structure. Recently, two experimental groups imaged bilayers of vitreous silica at atomic resolution which provides a direct access to the ring structure of a 2D glass ¹. It has been shown that experimental samples have various ring statistics, obey Aboav-Weaire law and have a distinct area law ². In this work, we study correlations between rings as a function of their size and topological separation. We show that correlation is medium-range and vanishes when the separation is about three rings apart. We also present a generalization of the Aboav-Weaire law.

¹Lichtenstein L et al, *Angew. Chem. Int. Ed.* 51 404 (2012) and Huang P Y et al, *Nano Lett.* 12 1081 (2012)

²Kumar A et al, *Journal of Physics: Condensed Matter* 26 39 (2014): 395401.

Seyed Mahdi Sadjadi
Arizona State Univ

Date submitted: 06 Nov 2015

Electronic form version 1.4