1161-05-185 **Linyuan Lu*** (lu@math.sc.edu), Department of Mathemetics, University of South Carolina, 1523 Greene Street, Columbia, SC 29208, and **Zhiyu Wang**, School of Mathematics, Georgia Institute of Technology, Atlanta, GA 30332. *On the size of planar graphs with positive Lin-Lu-Yau Ricci curvature.*

Let G be a planar graph embedded into a sphere. The combinatorial curvature $\phi(v)$ at a vertex v is defined by $\phi(v) = 1 - \frac{\deg(v)}{2} + \sum_{\sigma \in F(v)} \frac{1}{|\sigma|}$, where $F(v)$ is the set of faces touching v and $|\sigma|$ is the number of edges bounding a face σ. G is said to be positively curved if $\phi(v) > 0$ for every $v \in V(G)$. Higuchi [*J. Graph Theory, 2001*] conjectured that if G is a simple connected positively curved graph embedded into a 2-sphere and with minimum degree at least 3, then G is finite. DeVos and Mohar [*Trans. Amer. Math. Soc., 2007*] showed that if G is not a prism, and an antiprism, then $|V(G)| \leq 3444$, resolving Higuchi's conjecture. In this talk, we show an analogue of Higuchi's conjecture in the context of the Lin-Lu-Yau Ricci curvature. In particular, we show that if a planar graph G with minimum degree at least 3 has positive Lin-Lu-Yau Ricci curvature on every edge, then G is finite. (Received August 16, 2020)