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**Timothy Sun\*** ([timothysun@sfsu.edu](mailto:timothysun@sfsu.edu)). *On Kainen's conjectures on surface crossing numbers*. Preliminary report.

Kainen proved a general lower bound for the crossing number of a graph on a surface and conjectured that for the complete graphs  $K_n$  and the complete bipartite graphs  $K_{m,n}$ , that bound is tight for certain surfaces. We show that Kainen's conjectures are true except for the graphs  $K_9$ ,  $K_{3,5}$ , and  $K_{5,5}$ . (Received February 15, 2021)