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**Xiaoya Zha\*** (xzha@mtsu.edu), Department of Mathematical Sciences, Middle Tennessee State University, Murfreesboro, TN 37132. *Simple closed curves in  $N_3$* . Preliminary report.

A spanning subset of an embedding of a graph in some surface is bounded by union of cycles of graphs. These boundary cycles are simple closed curves in surfaces. Examples of spanning subsets are disks, annulus (with possibly some holes), Mobius band, etc. In this talk, we give a complete characterization of simple closed curves in  $N_3$ , the surface of nonorientable genus 3. (Received August 20, 2008)