1151-51-114 **Moira Chas*** (moira.chas@stonybrook.edu) and **Arpan Kabiraj**. *Computing the intersection of curves on surfaces via the Goldman Lie algebra.*

In the eighties, Goldman discovered two Lie algebra structures on two vector spaces generated by free homotopy classes of closed curves on a surface. In one case, the basis is given by the classes of oriented curves, and in the other, by the classes of unoriented curves.

These Lie brackets, by definition, combine transversal intersection structure with reconnection of curves.

We will describe how the algebraic structure then captures minimal intersection structure of curves on surfaces, in particular counting minimal intersections of a general curve with simple curves and showing the central elements are parallel to the boundary.

The proof uses both hyperbolic geodesic geometry and the effect of Thurston earthquakes on angles at intersection points. (Received August 12, 2019)