1146-54-470 **Joan S Birman** (jb@math.columbia.edu), Department of Mathematics, Columbia University, New York City, NY 10027, **Matthew J Morse** (mmorse@cs.nyu.edu), Department of Computer Science, NYU, New York City, NY 10012, and **Nancy C Wrinkle*** (n-wrinkle@neiu.edu), Department of Mathematics, Northeastern Illinois University, Chicago, IL 60625. *Studying distance in the curve graph of a surface.* Preliminary report.

We will begin this talk by examining the cellular decomposition of a closed orientable surface S, $Dec_{v,w}(S) = S \setminus (v \cup w)$, induced by a filling pair of curves, to see what it tells us about the intersection number $i(v, w)$ and the distance function d in the curve graph of S. We work in the setting of efficient geodesics, which were introduced by Birman, Margalit, and Menasco in 2014 (BMM). They gave an algorithm that begins with a pair of non-separating filling curves and computes from them a finite set of efficient geodesics. We will review then extend the notions of efficient geodesics to study the relationship between distance $d(v, w)$, intersection number $i(v, w)$, and $Dec_{v,w}(S)$. We will also describe some data we have for distances 3 and 4 and genus 2, produced by a computer program called MICC (Metric in the Curve Complex) that partly implements the BMM algorithm. Our main new result is the discovery and analysis of configurations of rectangles in $Dec_{v,w}(S)$, called *spirals*, which we will use to reduce $i(v, w)$ while preserving $d(v, w)$. We will then discuss open questions about how to use these spirals to increase distance. (Received January 28, 2019)