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Matthew Hedden* (mhedden@math.princeton.edu), Fine Hall, Washington Road, Princeton, NJ 08544. *Smooth knot concordance invariants*. Preliminary report.

I will briefly survey recent advances in the study of the smooth knot concordance group. In particular, I will focus on two powerful smooth concordance invariants, $\tau(K)$ and $s(K)$, associated to knots in the three-sphere. Both invariants, discovered by Ozsváth-Szabó and Rasmussen, and Rasmussen, respectively, provide lower bounds for the smooth slice genera of knots. The invariants share several striking properties and agree for many knots. One recent result I will discuss is the behavior of $\tau(K)$ under the satellite operation of Whitehead doubling, which has a particularly elegant solution. As it turns out, Whitehead doubles provide the first known examples, found jointly with Philip Ording, where τ and s (properly normalized) are not equal. This fact should pose several interesting questions regarding the structure of the smooth knot concordance group, which hopefully I can discuss. (Received January 21, 2006)