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Thomas H Parker* (parker@math.msu.edu), Mathematics Department, Michigan State University, East Lansing, MI 48824, and **Junho Lee** (junlee@mail.ucf.edu). *An Obstruction Bundle Relating Gromov-Witten Invariants of Curves and Kähler Surfaces.*

In previous work, the authors defined symplectic “Local Gromov-Witten invariants” associated to spin curves and showed that the GW invariants of Kähler surfaces with $p_g > 0$ are sums of such local invariants. This talk describes how these local GW invariants arise from an obstruction bundle (in the sense of Taubes) over the space of stable maps into curves. This yields a striking theorem relating two- and four-dimensional Gromov-Witten theory. We will also explain why the Euler class of this obstruction bundle *cannot* be computed using the Grothendieck-Riemann-Roch methods commonly used by algebraic geometers in similar situations. (Received February 01, 2008)