1153-57-163 **Ciprian Manolescu** and **Marco Marengon*** (marengon@math.ucla.edu), 520 Portola Plaza, Los Angeles, CA 90095, and **Sucharit Sarkar** and **Michael Willis**. *A generalization of Rasmussen's invariant, with applications to surfaces in some four-manifolds.*

Building on previous work of Rozansky and Willis, we generalise Rasmussen's s-invariant to $\#^r(S^1 \times S^2)$. Such an s-invariant can be computed by approximating the Khovanov-Lee complex of a link in $\#^r(S^1 \times S^2)$ with that of appropriate links in S^3. We use the approximation result to compute the s-invariant of a family of links in S^3 which seems otherwise inaccessible, and use this computation to deduce an adjunction inequality for null-homologous surfaces in a (punctured) connected sum of $\overline{CP}^2$. This inequality has several consequences: first, the s-invariant of a knot in S^3 does not increase under the operation of adding a null-homologous full twist. Second, the s-invariant cannot be used to distinguish S^4 from homotopy 4-spheres obtained by Gluck twist on S^4. We also prove a connected sum formula for the s-invariant of links in S^3, improving a previous result of Beliakova and Wehrli. We define two s-invariants for links in $S^1 \times S^2$. One of them gives a lower bound to the slice genus in $S^1 \times B^3$ and the other one to the slice genus in $D^2 \times S^2$. Lastly, we give a combinatorial proof of the slice Bennequin inequality in $S^1 \times S^2$. (Received August 25, 2019)