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Ananthnarayan Hariharan (ahariharan2@math.unl.edu), **Paolo Mantero*** (pmantero@msri.org) and **Alexandra Seceleanu** (aseceleanu2@math.unl.edu). *Constructing some classes of Gorenstein rings via connected sums.*

A construction recently introduced by L. Avramov, A. Hariharan and F. Moore allows one to produce a new Gorenstein local ring starting from three Gorenstein local rings R , S and T . This new ring is called a connected sum of R and S over T . The main question is: What Gorenstein (Artinian) local rings arise in this way?

E. Celikbas, A. Hariharan and Y. Zheng have shown that every stretched or short Gorenstein Artinian local k -algebra arises as a connected sum over a field $T = k$. In this talk we show that, slightly more complicated choices of T allow us to realize more general classes of Gorenstein local k -algebras as connected sums over T . We also show that connected sums over these more complicated T can have a much wilder behavior than the connected sums over k . (Received September 25, 2012)