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H Ananthnarayan* (ananth@math.iitb.ac.in), Department of Mathematics, I.I.T Bombay, Powai, Mumbai, MH 400076, India, and **Ela Celikbas** and **Zheng Yang**. *Decomposing Gorenstein rings as connected sums*.

In 2012, Ananthnarayan, Avramov and Moore gave a new construction of Gorenstein rings from two Gorenstein local rings, called their connected sum. Given a Gorenstein ring, one would like to know whether it can be decomposed as a connected sum and if so, what are its components.

In the case of a Gorenstein Artin local algebra over a field, these objects have been studied under different names and from different perspectives by various authors starting with Sah (1974) in the graded case and, in the local case, by Lescot (1982). A topologically influenced version was also studied in recent work by Smith and Stong, and quite a few authors approach this area via Macaulay's inverse systems.

In this talk, we look at intrinsic properties of the ring and its defining ideal to give a characterization for such rings to be connected sums. In the process, we identify some properties that prevent the ring from being decomposable as a connected sum, and show that some classes of Gorenstein Artin rings, such as compressed algebras and complete intersection rings, are indecomposable as a connected sum. (Received January 20, 2015)