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([russell12@math.rutgers.edu](mailto:russell12@math.rutgers.edu)). *Conjecturing new partition identities with computer algebra*. Preliminary report.

Rogers-Ramanujan identities and their numerous generalizations (Gordon, Andrews-Bressoud, Capparelli, etc.) form a family of very deep identities concerned with the integers partitions. These identities (written in generating function form) are typically of the form "product side" equals "sum side", with the product side enumerating partitions obeying certain congruence conditions and the sum side obeying certain initial conditions and difference conditions (along with possibly other restrictions). We use symbolic computation to generate various such sum sides and then use Euler's algorithm to see which of them actually do produce elegant conjectured product sides. We not only rediscover many of the known identities but also discover some apparently new ones. (Received August 18, 2014)