The development of the CheMin mineralogy instrument and its deployment on Mars (and latest results from the Mars Science Laboratory rover *Curiosity*)

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Abstract: The CheMin instrument (short for “Chemistry and Mineralogy”) on the Mars Science Laboratory rover *Curiosity* is one of two “laboratory quality” instruments on board the *Curiosity* rover that is exploring Gale crater, Mars. CheMin is an X-ray diffractometer that has for the first time returned definitive and fully quantitative mineral identifications of Mars soil and drilled rock. I will describe CheMin’s 23-year development from an idea to a spacecraft qualified instrument, and report on some of the discoveries that Curiosity has made since its entry, descent and landing on Aug. 6, 2012, including the discovery and characterization of the first habitable environment on Mars.