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Fermi Large Area Telescope Second Source Catalog SETH DIGEL, KIPAC/SLAC, JEAN BALLET, CEA/Saclay, THOMPSON BURNETT, University of Washington, GINO TOSTI, University of Perugia, FERMI LARGE AREA TELESCOPE COLLABORATION — We present the second catalog of high-energy gamma-ray sources detected by the Large Area Telescope (LAT), the primary science instrument on the Fermi Gamma-ray Space Telescope (Fermi). The Second Fermi LAT catalog (2FGL) is the product of a comprehensive analysis of the first 2 years of LAT science data. The catalog contains 1873 sources detected and characterized in the 100 MeV to 100 GeV range of which we consider 127 as being firmly identified and 1170 as being reliably associated with counterparts of known or likely gamma-ray-producing source classes. In addition, 576 of the 2FGL sources have no plausible counterparts at other wavelengths. The 2FGL catalog and associated products are available from the Fermi Science Support Center. We look forward to extensive use of this catalog in high-energy astrophysics.

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