A NEW CATALOG OF DIFFUSE INTERSTELLAR BANDS

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As part of our long-term survey of the diffuse interstellar bands (DIBs) at the Apache Point Observatory, we have obtained a high resolution ($\lambda/\Delta\lambda \sim 38000$) and high signal-to-noise (S/N ~ 750) spectrum of the heavily reddened star HD 204827. We have found this star to be a double-lined spectroscopic binary, which makes it possible to unambiguously exclude stellar lines from our compilation of DIBs. In total, we have cataloged 380 DIBs in this sightline, 113 of which were not reported in four earlier modern surveys of the DIBs toward stars other than HD 204827. The majority of the bands detected are very weak (equivalent widths of a few mÅ) and relatively narrow (most often near 0.55 Å). The increased number of observed DIBs in our survey may be due not just to our high signal-to-noise ratio, but also to the unique chemical environment in this sightline, as evidenced by the large C_3 column density and the strength of the "C_2 DIBs." We expect that this new catalog, available online at http://dibdata.org, will serve as a useful tool for laboratory spectroscopists who obtain spectra of potential DIB carriers.