

LABORATORY DETECTION OF A MOLECULAR BAND COINCIDENT WITH THE DIFFUSE INTERSTELLAR BAND AT  $\lambda 4428$

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A strong molecular absorption band at  $4429.27 \pm 0.04 \text{ \AA}$ , closely centered on the strongest diffuse interstellar band at  $4428.9 \pm 1.4 \text{ \AA}$ , has been found in a supersonic molecular beam among the products of a discharge through benzene and other hydrocarbons. This agreement in wavelength to a few parts in  $10^4$  strongly suggests a common carrier. The width of the laboratory band is significantly less than that of the interstellar band, but this difference may be the result of the very low rotational temperature in the supersonic beam relative to that of a weakly polar molecule in the diffuse interstellar gas (100-200 K). Deuterium substitution suggests a carrier with elemental formula  $C_xH_5$ , where  $3 \leq x \leq 6$ . Several candidate carriers are discussed.