Magnetochromism in the Quasi-2D Heisenberg Antiferromagnet, $\text{K}_2\text{V}_3\text{O}_8$

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We present the optical and magneto-optical properties (0 - 32 T) of the $S = 1/2$ quasi-two-dimensional Heisenberg antiferromagnet, $\text{K}_2\text{V}_3\text{O}_8$. A large magnetochromic effect, centered at $\sim$2.6 eV, is observed at 4.2 K, and it is attributed to a change in the $V^{4+}$ on-site excitation. An additional very sharp magneto-optical feature near $\sim$1.2 eV may be associated with a vibronic excitation. Fine structure allows us to identify the coupling phonon. These field-induced color changes point toward a 12 T transition involving local distortions.

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