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The phase diagram of the organic charge transfer salts (TMTTF)₂X¹ F. ZHANG, UCLA, W. YU, B. ALAVI, A. BAUR, C. A. MERLIC, S. E. BROWN — We report on NMR spectroscopy and relaxation measurements probing the temperature/pressure phase diagram of the quasi-one-dimensional organic conductor (TMTTF)₂SbF₆. This material undergoes a charge ordering (CO) phase transition at $T = 156K$, and the ground state is antiferromagnetic (AF) at ambient pressure. Our experiments show that the AF ground state is suppressed sharply by applying hydrostatic pressure and a new phase appears at higher pressure. At intermediate pressures, magnetic ordering is suppressed to temperatures below the minimum measured so far, $T = 2K$. The nature of the high pressure phase is not yet established; there are features consistent with both spin-Peierls (SP), and antiferromagnetic ordering. We discuss the possible role of counterion disorder in producing an inhomogeneous system consistent with our observations, and the implications for a general phase diagram for the TMTTF/TMTSF family of organic conductors.

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