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Metal to Nonmagnetic-Insulator Transition in $LiVS_2$ NAOYUKI KATAYAMA, MINORU NOHARA, University of Tokyo, MASAYA UCHIDA, NIMS, HIDENORI TAKAGI, University of Tokyo — $LiVS_2$ has been reported to exhibit a first order magnetic transition with a drastic decrease in susceptibility at about 310 K[1]. In order to clarify the nature of this transition, we performed resistivity, magnetic susceptibility, and electron diffraction measurement for $LiVS_2$. The resistivity in $LiVS_2$ revealed a metal to insulator (MI) transition at $T_c \sim$ 310 K. In the insulating state below T_c, we observed $\sqrt{3}a_0 \times \sqrt{3}a_0$superstructure in the electron diffraction, indicating a formation of vanadium trimers in the *ab* plane. Together with the drastic decrease in susceptibility at T_c, we propose a formation of trimer singlet state below T_c for $LiVS_2$. Although this ground state is analogous to that observed in the isostructural and isoelectronic oxide $LiVO_2$[2], the MI transition is unique to $LiVS_2$. [1] D. W. Murphy *et al.*; Inorg. Chem. **15** (1976) 17. [2] W. Tian *et al.*; Mater. Res. Bull. **39** (2004) 1319.

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