Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

The magnetic structure of the zigzag chain family $\mathbf{Na_xCa_{1-x}V_2O_4}$ determined by muon-spin rotation OREN OFER, TATSUO GOKO, TRIUMF, 4004 Wesbrook Mall, Vancouver BC, V6T1A3 Canada, JESS H. BREWER, CIfAR and Department of Physics and Astronomy, UBC and TRIUMF, 4004 Wesbrook Mall, Vancouver, EDUARDO J. ANSALDO, TRIUMF, 4004 Wesbrook Mall, Vancouver, JUN SUGIYAMA, Toyota CRDL Inc., Nagakute, Aichi 480-1192, Japan, YUTAKA IKEDO, Muon Science Laboratory, Institute of Materials Structure Science, KEK, 1-1 Oho, Tsukuba, Ibaraki 305-0801, Japan, KIM CHOW, Department of Physics, University of Alberta, Edmonton, AB, T6G 2G7 Canada, MARTIN MÅNSSON, Laboratory for Neutron Scattering, ETH Zürich and Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland, HIROYA SAKURAI, National Institute for Materials Science, Namiki, Tsukuba, Ibaraki 305-0044, Japan — We present a muon spin rotation measurements on the complete zig-zag chain $Na_xCa_{1-x}V_2O_4$ family. In this family we explore the magnetic properties from the metallic NaV_2O_4 to the insulating CaV_2O_4. We find a critical x_c which separates the low and high x transition temperature and its magnetic ground state. For $x < x_c$ the magnetic phase transition is characterized by a single homogenous phase, whereas in $x > x_c$ multiple subphases are revealed. Based on the muon data, dipolar field simulation indicate a helical incommensurate structure in $x = 1$ with a ~ 4.88 periodicity.

Oren Ofer
TRIUMF, 4004 Wesbrook Mall, Vancouver BC, V6T1A3 Canada

Date submitted: 07 Jan 2010 Electronic form version 1.4