Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Muon-spin rotation and magnetization studies of chemical and hydrostatic pressure effects in $EuFe_2(As_{1-x}P_x)_2$ ZURAB GUGUCHIA, Physik-Institut der Universitat Zurich, ALEXANDER SHENGELAYA, Department of Physics, Tbilisi State University, ALEXANDER MAISURADZE, Physik-Institut der Universitat Zurich,Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, LUDOVIC HOWALD, Physik-Institut der Universitat Zurich, ZBIGNIEW BUKOWSKI, Laboratory for Solid State Physics, ETH Zurich, MAMUKA CHIKOVANI, Department of Physics, Tbilisi State University, HUBERTUS LUETKENS, Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, SERGIY KATRYCH, JANUSZ KARPINSKI, Laboratory for Solid State Physics, ETH Zurich, HUGO KELLER, Physik-Institut der Universitat Zurich, UNI ZURICH TEAM, TSU, GEORGIA COLLABORATION, ETH, ZURICH COLLABORATION, PSI COLLABORATION — The magnetic phase diagram of $EuFe_2(As_{1-x}P_x)_2$ was investigated by means of magnetization and muon-spin rotation studies as a function of chemical (isovalent substitution of As by P) and hydrostatic pressure. The magnetic phase diagrams of the magnetic ordering of the Eu and Fe spins with respect to P content and hydrostatic pressure are determined and discussed. The present investigations reveal that the magnetic coupling between the Eu and the Fe sublattices strongly and similarly depends on chemical and hydrostatic pressure. Their impact on the occurrence of superconductivity in $EuFe_2(As_{1-x}P_x)_2$ is discussed.

Zurab Guguchia
Physik-Institut der Universitat Zurich

Date submitted: 15 Nov 2013 Electronic form version 1.4