

Abstract Submitted  
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**Anionogenic Magnetism: Mixed Alkali – Alkaline Earth Metal Oxides** SHIVAKUMARA GIRIYAPURA, SYARIF RIYADI, Solid State Materials for Electronics, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands, BAOMIN ZHANG, ROBERT A. DE GROOT, Electronic Structure of Materials, IMM, Radboud University Nijmegen, Nijmegen, The Netherlands, THOMAS T.M. PALSTRA, GRAEME R. BLAKE, Solid State Materials for Electronics, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands, S S M E TEAM, IMM COLLABORATION — The scientific and technological potential of materials in which magnetism arises from p-electrons is little explored. Accordingly, we have synthesized the solid solution  $\text{Ba}_{1-x}\text{K}_x(\text{O}_2^{2-})_{1-x}(\text{O}_2^-)_x$  which contains a nominal mixture of magnetic superoxide and non magnetic peroxide anions. Magnetization measurements reveal short range antiferromagnetic ordering below  $\sim 65$  K for all compositions, with an increasing tendency toward ferromagnetic interactions at lower temperatures, characterized by the opening of magnetic hysteresis loops in applied fields. Field induced reorientation of the dioxygen dumbbells probably occurs, altering the magnetic exchange interactions between nearest neighbor anions.

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