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Chemical pressure effects on magnetism in the quantum spin liquid candidates $Yb_2B_2O_7$ (B = Sn, Ti, Ge) ZHILING DUN, University of Tennessee, Knoxville, MINSONG LEE, EUNSANG CHOI, National High Magnetic Field Laboratory; Florida State University, ALANNAH HALLAS, University of Manitoba, Canada, CHRIS WIEBE, National High Magnetic Field Laboratory; University of Manitoba, Canada; University of Winnipeg, Canada, ALANNAH HALLAS, University of Manitoba, Canada, JASON GARDNER, National Synchrotron Radiation Research Center, Taiwan, EVERTON ARRIGHI, Instituto de Fisica,Brazil, RICARDO FREITAS, Instituto de Fisica, Brazil, ANGEL LOPEZ, University of Edinburgh, UK, HAIDONG ZHOU, National High Magnetic Field Laboratory; University of Tennessee, Knoxville, JINGUANG CHENG, Beijing National Laboratory for Condensed Matter Physics; Institute of Physics, Chinese Academy of Sciences — The linear and nonlinear AC susceptibility measurements of Yb-pyrochlores, $Yb_2B_2O_7$ (B = Sn, Ti and Ge), show a ferromagnetic ordering at 0.13 K but with short range ordering nature for $Yb_2Sn_2O_7$, a ferromagnetic ordering at 0.25 K for $Yb_2Ti_2O_7$, and an antiferromagnetic ordering at 0.62 K for $Yb_2Ge_2O_7$. These systematical results (i) clarified the nature of the controversial magnetic ground state in $Yb_2Ti_2O_7$; (ii) realized a distinct antiferromagnetic ordering state in $Yb_2Ge_2O_7$; and (iii) demonstrated that the application of chemical pressure through the series of Yb-pyrochlores can efficiently perturb the fragile quantum spin fluctuations of the Yb^{3+} ions and lead to very different magnetic ground states.

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