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Li-7 Machine for Quantum Magnetism Experiments JESSE AMATO-GRILL, IVANA DIMITROVA, NIKLAS JEPSEN, MICHAEL MESSER, MIT, GRACIANA PUENTES, ICFO, DAVID WELD, UC Santa Barbara, DAVID PRITCHARD, WOLFGANG KETTERLE, MIT, CENTER FOR ULTRACOLD ATOMS COLLABORATION — A new Li-7 Bose-Einstein condensate experiment (currently under construction) will realize and probe novel magnetic phases of matter. Because of the small mass of the Li atom and tight lattice spacing, we expect to achieve a 100-fold increase in tunneling rate between lattice sites over comparable Rb-87 optical lattice emulator experiments. These improvements will allow us to access new regimes in quantum magnetic phase transitions and spin dynamics.

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