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Fiber-Bragg-grating stabilized diode laser at 1450 nm locked to a high finesse build-up cavity.[1] THOMAS DEVORE, MATTHEW REDSHAW, EDMUND MYERS, Florida State University — Using Doppler-tuned fast-beam laser spectroscopy and a high finesse build-up cavity (F ∼60,000) excited by a 1319 nm Nd:YAG laser we previously measured the $1s2s\ \ ^1S_0$ – $1s2p\ \ ^3P_1$ intercombination interval in Si^{12+} to be 7230.5(2) cm^{-1} [1]. The precision was limited by uncertainty in the (v/c ∼ 5%) ion beam velocity. An order of magnitude higher precision would provide a clear test of calculations of QED contributions in two-electron ions. We aim to attain this by alternately exciting the resonance with co- and counter-propagating laser beams using a cavity that has high-finesse for both 1319 nm and 1450 nm. For the 1450 nm wavelength we are using few-hundred mW, fiber-coupled, pump laser diodes that have been spliced to custom fiber-Bragg-gratings to achieve single-mode operation and greatly reduced linewidth [2]. The lock to the build-up cavity is achieved using the Pound-Drever-Hall technique with feedback to the laser diode current and to a piezo that strains the fiber between the laser and the FBG. The assistance of A. Khademian and D. Shiner (Univ. North Texas) is gratefully acknowledged. [1] M. Redshaw and E.G. Myers, PRL **88** 023002 (2002). [2] A. Khademian and D. Shiner, BAPS **51**, 145 (2006).

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