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Development of a high-gain optical amplifier for optical stochastic cooling

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Optical stochastic cooling (OSC) is a recently demonstrated state-of-the-art method for beam cooling and control. The strength and utility of OSC can be greatly extended by the inclusion of a high-gain optical amplifier in the system. The amplifier is necessarily a bespoke system whose design and implementation are highly constrained by the OSC physics and system design. In this report, we discuss the unique considerations and performance requirements for the amplifier, review detailed simulations for the integrated system, and report on the current experimental measurements and status.

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