

MIT Research Digest

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Single-Atom Laser

MIT researchers have successfully operated a laser using a single, isolated atom. The long-sought development marks the first time that laser oscillation has been achieved with only one atom in the laser resonator. The new device, which the researchers call a microlaser, constitutes a fundamental advance in laser physics and the field of cavity quantum electrodynamics, the study of how atomic systems radiate in an enclosed laser resonator. "This development is expected to lead to further fundamental advances in our knowledge of light and its interaction with atoms," said Dr. Michael S. Feld, director of MIT's George R. Harrison Spectroscopy Laboratory and a professor in the Department of Physics. The research, which is the PhD thesis project of Kyungwon An, was funded by the NSF. It was scheduled to be published in Physical Review Letters.