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One of the secrets to making tiny laser devices such as ophthalmic surgery scalpels work even more efficiently is the use of tiny semiconductor particles, called quantum dots. In new research by Los Alamos National Laboratory's Nanotech Team, the nanometer-sized dots are being doctored, or "doped," with additional electrons, a treatment that nudges the dots ever closer to producing the desired laser light with less stimulation and energy loss.

"When we properly tailor the compositional profile within the particles during their fabrication, and then inject two or more electrons in each dot, they become more able to emit laser light. Importantly, they require considerably less power to initiate the lasing action," said Victor Klimov, leader of the Nanotech team.

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