Inexpensive External Cavity Diode Laser

UA ID Technology #ua18-247

Title: Inexpensive External Cavity Diode Laser

Invention: Researchers at the University of Arizona have developed an inexpensive and compact platform for robust compact laser sources. The novel laser platform provides continuous-wave (CW) and single-frequency operation with efficient further frequency agility using external cavities. The lasers are inexpensive to make and perform the same functions with the same characteristics as much more expensive lasers.

Background: Although trapped ion systems represent one of the very promising avenues for scalable quantum systems technology and have demonstrated high-fidelity multi-qubit operations, the laser systems used in this application can occupy a significant fraction of the researchers' time, attention, and resources in dealing with beam misalignment, power instabilities, and frequency locking/re-locking. With growing commercial interest in quantum technology, there is a compelling need and demand for robust compact laser sources to enable scalability.

Advantages:
* easy to fabricate
* inexpensive and compact
* single frequency operation

Applications:
* consumer electronics
* atomic and molecular spectroscopy
* quantum communications

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