



Laser stabilization to an atomic transition using an optically generated dispersive lineshape

Fabiano Queiroga, Weliton Soares Martins, Valdeci Mestre, Itamar Vidal, Thierry Passerat de Silans, Marcos Oriá, Martine Chevrollier

(Submitted on 2 Apr 2012)

We report on a simple and robust technique to generate a dispersive signal which serves as an error signal to electronically stabilize a monomode cw laser emitting around an atomic resonance. We explore nonlinear effects in the laser beam propagation through a resonant vapor by way of spatial filtering. The performance of this technique is validated by locking semiconductor lasers to the cesium and rubidiumD2 line and observing long-term reduction of the emission frequency drifts, making the laser well adapted for many atomic physics applications.

Comments: Article accepted for publication in Applied Physics B - Lasers and Optics

Subjects: **Atomic Physics (physics.atom-ph)**

Journal reference: Applied Physics B - Laser and Optics (2012), 107:313-316

DOI: [10.1007/s00340-012-4981-1](https://doi.org/10.1007/s00340-012-4981-1)

Cite as: **arXiv:1204.0506 [physics.atom-ph]**

(or **arXiv:1204.0506v1 [physics.atom-ph]** for this version)

Submission history

From: Thierry Passerat de Silans [[view email](#)]

[v1] Mon, 2 Apr 2012 19:38:23 GMT (209kb)

[Which authors of this paper are endorsers?](#)

Download:

- [PDF](#)
- [PostScript](#)
- [Other formats](#)

Current browse context:

physics.atom-ph

[< prev](#) | [next >](#)

[new](#) | [recent](#) | [1204](#)

Change to browse by:

[physics](#)

References & Citations

- [NASA ADS](#)

Bookmark (what is this?)

