



# New resonant cavity-enhanced absorber structures for mid-infrared detector application

Moshe Zohar, Mark Auslender, Lorenzo Faraone, Shlomo Hava

(Submitted on 1 Apr 2012)

A new dielectric Fabry-Perot cavity was designed for a resonant enhancing optical absorption by a thin absorber layer embedded into the cavity. In this cavity, the front mirror is a subwavelength grating with  $\sim 100\%$  retroreflection. For a HgCdTe absorber in a matching cavity of the new type, the design is shown to meet the combined challenges of increasing the absorbing efficiency of the entire device up to  $\sim 100\%$  and reducing its size and overall complexity, compared to a conventional resonant cavity enhanced HgCdTe absorber, while maintaining a fairly good tolerance against the grating's fabrication errors.

Comments: 7 pages, 5 figures, Numerical Simulations of Optoelectronic Devices (NUSOD) 2011 Conference; Opt Quant Electron, 2011

Subjects: **Optics (physics.optics)**; Materials Science (cond-mat.mtrl-sci)

Cite as: [arXiv:1204.0226](#) [physics.optics]

(or [arXiv:1204.0226v1](#) [physics.optics] for this version)

## Submission history

From: Mark Auslender [[view email](#)]

[v1] Sun, 1 Apr 2012 15:48:34 GMT (1051kb)

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

Link back to: [arXiv](#), [form interface](#), [contact](#).

## Download:

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

Current browse context:

physics.optics

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

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

Change to browse by:

[cond-mat](#)

[cond-mat.mtrl-sci](#)

[physics](#)

## References & Citations

- [NASA ADS](#)

Bookmark([what is this?](#))

