



THE CHINESE UNIVERSITY OF HONG KONG  
**Department of Physics**  
SEMINAR

## Coherent Perfect Absorber: Anti-laser

*by*

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ALL INTERESTED ARE WELCOME  
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### Abstract

In the time-reversed process to laser emission, incident coherent optical fields are perfectly absorbed within a resonator which contains a loss medium, instead of a gain medium. The incident fields and frequency must coincide with those of the corresponding laser with gain. We experimentally demonstrate this effect for two counter-propagating incident fields in a silicon cavity, showing that absorption can be enhanced by two orders of magnitude. In addition we show that absorption can be reduced substantially by varying the relative phase of the incident fields. The device, termed a “coherent perfect absorber”, functions as an absorptive interferometer, with potential practical applications in integrated optics.

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