Casimir effect in a cavity of atom mirrors

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We describe a mirror in terms of a derivative-coupled Unruh-DeWitt harmonic-oscillator detector, which is analogous to an atom, in (1+1) dimensions. The reflectivity of a detector (atom) mirror is dynamically determined by the interaction of the detector's internal degrees of freedom and the field. We show how the quantum field in a cavity of two such atom mirrors evolves to a quasi-discrete spectrum associted with a negative energy density. Using this theoretical device we study the Casimir effect on a probe detector inside this cavity.