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(57) **ABSTRACT**

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An atomic oscillator of the present disclosure includes: a gas cell in which an alkali metal atom is encapsulated; a light generating unit emitting emission light onto the gas cell; a light detecting unit detecting transmitted light passed through the gas cell; and a control device determining a resonance frequency of the emission light based on a light amount of the detected transmitted light. The control device stores correspondence information in which a feature value of a transmitted light spectrum is associated with a state of the emission light, performs estimation processing to extract the feature value of the transmitted light spectrum from the detected transmitted light and estimate the state of the emission light corresponding to the extracted feature value of the transmitted light spectrum based on the correspondence information, and controls an emission state of the emission light based on the estimated state of the emission light.

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