The research on vibrating modes of Faraday waves[1] WENDING ZHAO, SIHUI WANG, ZHOUYOU FAN, ENZE CHEN, HUIJUN ZHOU, WENLI GAO, Nanjing Univ, NANJING UNIV TEAM — This paper investigates the Faraday wave patterns and corresponding vibrating modes of ideal fluid theoretically and experimentally. The dispersion relation has been got by the deriving of amplitude equations of Faraday waves. The range of eigenvalue, , is also calculated based on the parametric resonance theory. In order to predict the possible patterns in real space, we propose a geometric model on the basis of experimental parameters, which can intuitively predict the different wave patterns and the conditions of mode competitions. We also analyze the experimental phase diagram and get a good agreement between the measured and theoretical results.

[1]Faraday waves; dispersion relation; sub-harmonic resonance

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