

Q 1. With so small gap between the gold plates how the reflective resonance at $\sim 550\text{nm}$ can be possible?

A 1. $2l$ (where l is cavity length) is the longest wavelength that the cavity can have. Since the gap between the two gold plates is about 136nm , the resonance wavelength should be less than 272nm , not 550nm . There is any clue that the actual size of cavity for their calculation. Accounting very end of two gold plates with considering the index of refraction of each material, then total optical cavity length can be considered as about 280nm which gives 560nm of Fabry-Pérot resonance wavelength.

Q 2. Does the light source affect on the position of the nano-plate?

A 2. There is any information from the paper about the force acting on the nano-plate. However, the thin nano-plate of gold with 45nm thickness had low reflectivity. Thus the radiation pressure from the light source would be so small to ignore the effect of trapping position.