

# CHEMISTRY

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### Supporting Information

#### **Voltage-Controlled Switching of Strong Light–Matter Interactions using Liquid Crystals**

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Thomas W. Ebbesen,<sup>[c]</sup> and Karl Börjesson<sup>\*[a]</sup>

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**“Voltage controlled switching of strong  
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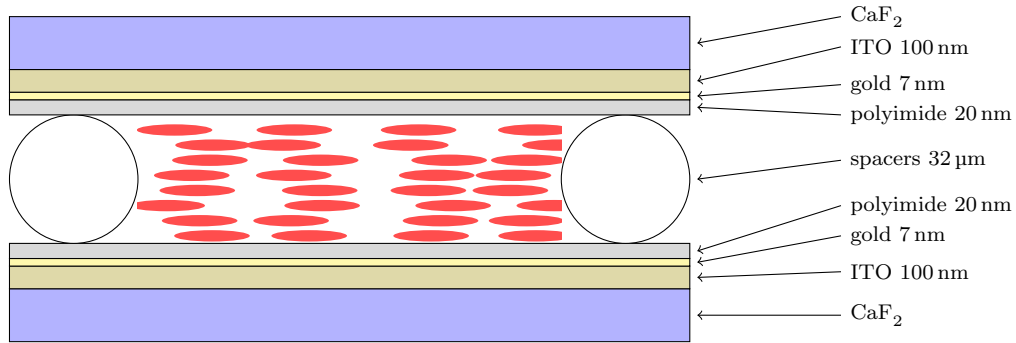
# Cavity description

Cavity thickness measurement was calculated using:

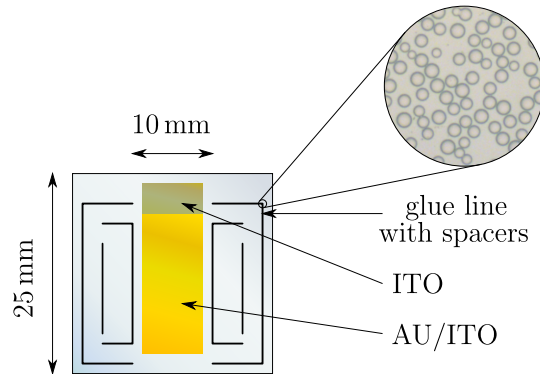
$$d = \frac{m}{2} \left( \frac{\lambda_1 \cdot \lambda_2}{\lambda_1 - \lambda_2} \right) \quad (1)$$

And was corrected with the refractive index of the medium:

$$d_{eff} = \frac{d}{n_{medium}} \quad (2)$$



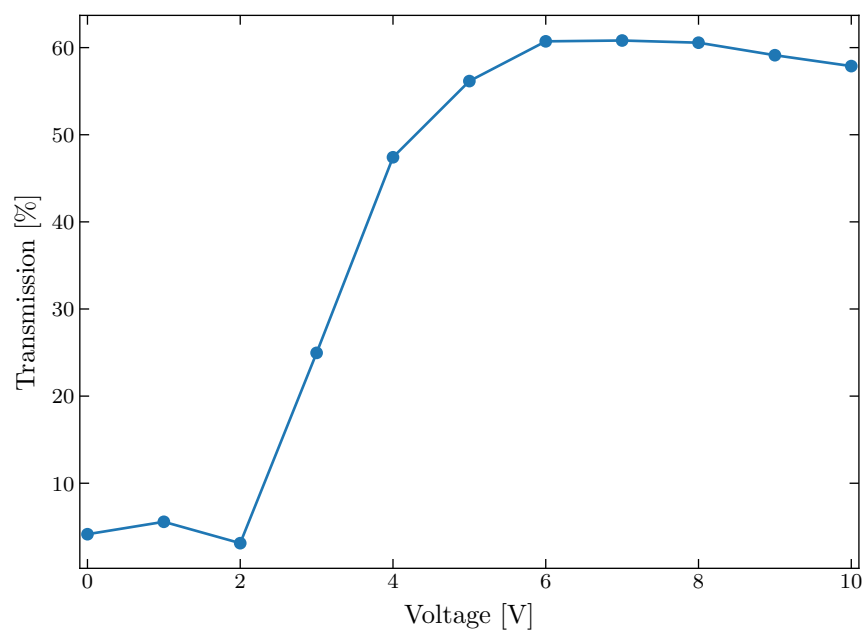
**Figure S1:** *Cavity cross-section of a processed cavity.*



**Figure S2:** *Top-view of a processed substrate before sealing. Glue lines are optimized to avoid bending of the  $\text{CaF}_2$  substrates.*

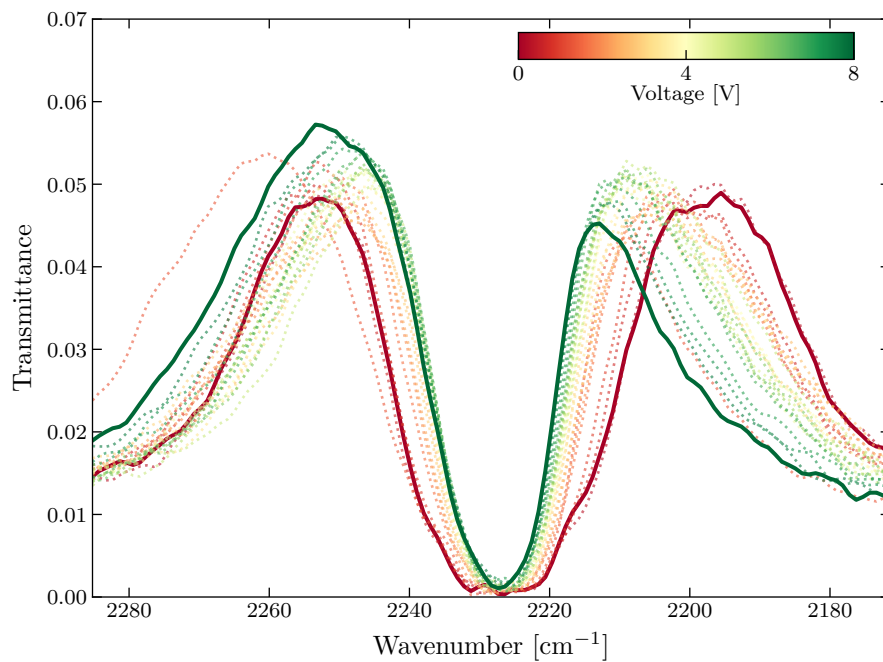
## Switching voltage

Switching voltage experiment was performed on a UV/VIS spectrophotometer (Lambda 650, Perkin Elmer). The sample was put between crossed polarizers and the transmission was recorded at 452 nm.

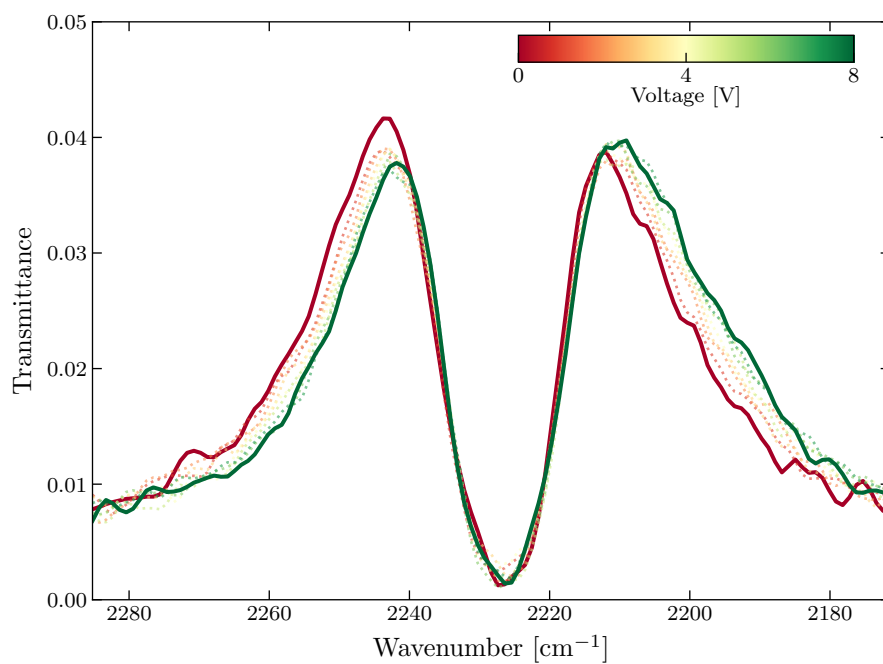


**Figure S3:** *Switching voltage of 5CB.*

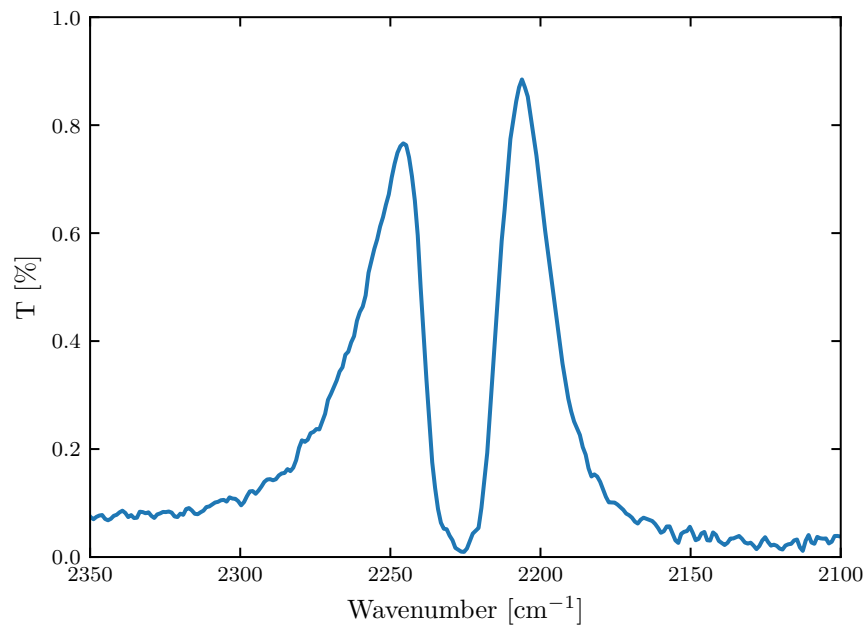
## Rabi-splitting vs voltage



**Figure S4:** Raw data from Fig. 4a.

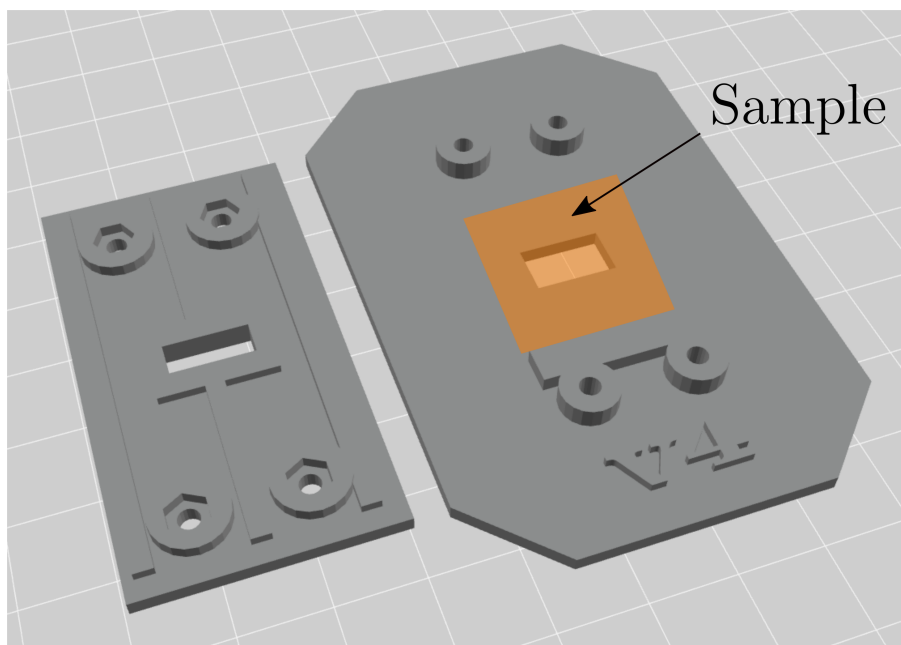


**Figure S5:** Raw data from Fig. 4b.



**Figure S6:** *Transmission spectrum of 5CB in an isotropic phase. The value of the splitting is  $\hbar\Omega_R = 40 \text{ cm}^{-1}$*

## Sample holder



**Figure S7:** *Sample holder made with a 3D printer. The sample is put between the two plates. The dimension of the sample holder is standard FTIR sample holder size.*