

## Supporting Information

### Understanding the Polaron Behavior in $\text{Cs}_2\text{CuSbCl}_6$ Halide Double Perovskite

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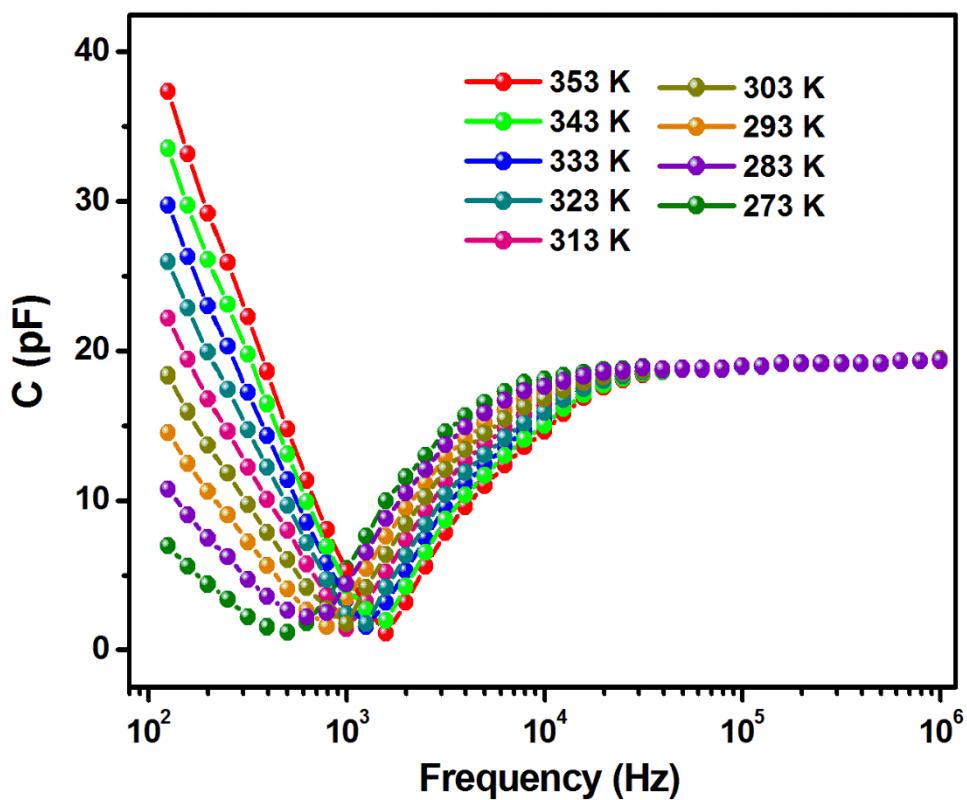
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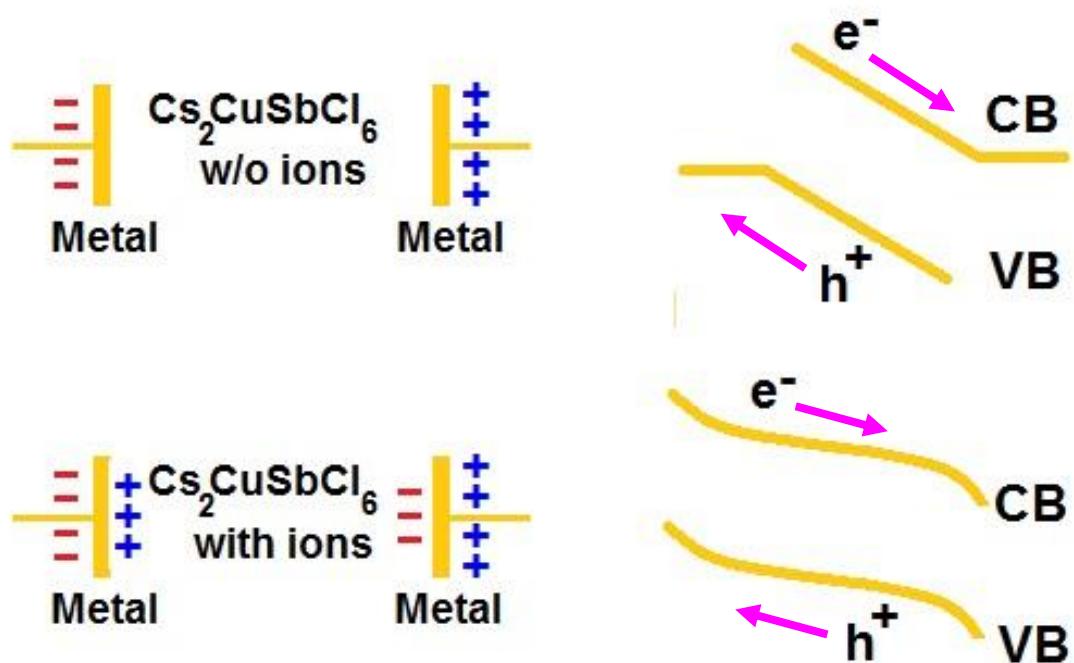
### Supplementary Figures



**Fig. S1.** Schematic picture of the solvothermal method to obtain  $\text{Cs}_2\text{CuSbCl}_6$  single crystals.



**Fig. S2.** Frequency dependence of capacitance for  $\text{Cs}_2\text{CuSbCl}_6$  at various temperature.



**Fig. S3.** Metal/  $\text{Cs}_2\text{CuSbCl}_6$  /metal band diagram demonstrating ion accumulation.

## Supplementary Tables

**Table S1.** Proportions of Chemical Elements in  $\text{Cs}_2\text{CuSbCl}_6$  SCs.

| <i>Chemical element</i> | <i>% Atomic</i> |
|-------------------------|-----------------|
| Caesium (Cs)            | 22              |
| Copper (Cu)             | 9               |
| Antimony (Sb)           | 11              |
| Chloride (Cl)           | 58              |

**Table S2.** Thermal variation of parameters  $n_1$ ,  $n_2$  and  $n_3$ .

| <i>Temperature (K)</i> | $n_1$ | $n_2$ | $n_3$ |
|------------------------|-------|-------|-------|
| 273                    | 0.95  | 0.27  | 0.62  |
| 283                    | 0.93  | 0.18  | 0.60  |
| 293                    | 0.90  | 0.22  | 0.59  |
| 303                    | 0.87  | 0.21  | 0.56  |
| 313                    | 0.82  | 0.23  | 0.53  |
| 323                    | 0.76  | 0.19  | 0.47  |
| 333                    | 0.70  | 0.21  | 0.45  |
| 343                    | 0.64  | 0.23  | 0.43  |
| 353                    | 0.57  | 0.24  | 0.42  |

**Table S3.** The values of 'm' were calculated based on the fitted plots of  $\varepsilon''(\omega)$  obtained at various temperatures

| Temperature | Value of 'm' |
|-------------|--------------|
| 273         | -0.51        |
| 283         | -0.54        |
| 293         | -0.59        |
| 303         | -0.63        |
| 313         | -0.66        |
| 323         | -0.71        |
| 333         | -0.75        |
| 343         | -0.79        |
| 353         | -0.82        |