

## Scaling properties and valley effects in chromium trihalides

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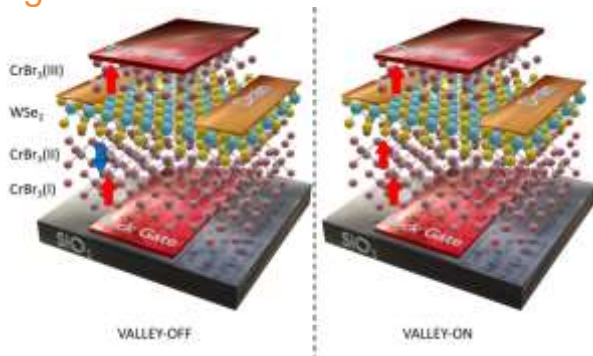
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Chromium trihalides have become an easy platform to study the electronic and optical properties of magnetic 2D materials. In the first part of this talk, I will show recent experimental and theoretical results showing the scaling of the optical properties of  $\text{CrI}_3$  with sample thickness [1]. On the second part, I will introduce a proof-of-concept device (Fig.1) interfacing  $\text{CrBr}_3$  and  $\text{WSe}_2$  monolayers that shows a unprecedented valley splitting of near 100 meV in the conduction band [2].

### References

- [1] Marta Galbiati *et al.*, Physical Review Letters, 130 (2023) 176901
- [2] D. Soriano, D. Marian, P. Dubey, G. Fiori, Physical Review B, 109 (2024) 115434

### Figures



**Figure 1.** Proof-of-concept valleytronic device based on  $\text{CrBr}_3/\text{WSe}_2/\text{CrBr}_3$  van der Waals heterostructure