

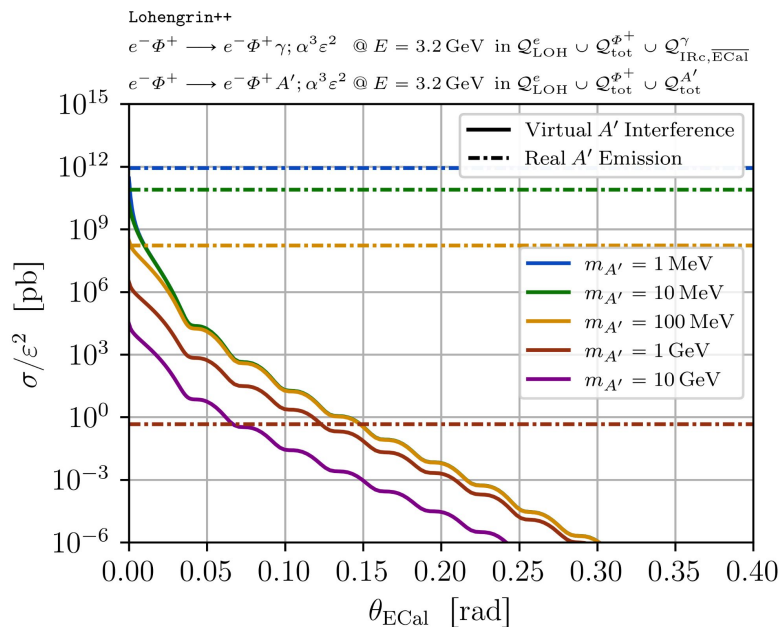
LOHENGRIN 15/5/25

Kuriositäten aus dem Theorie-Keller II

Martin Schürmann

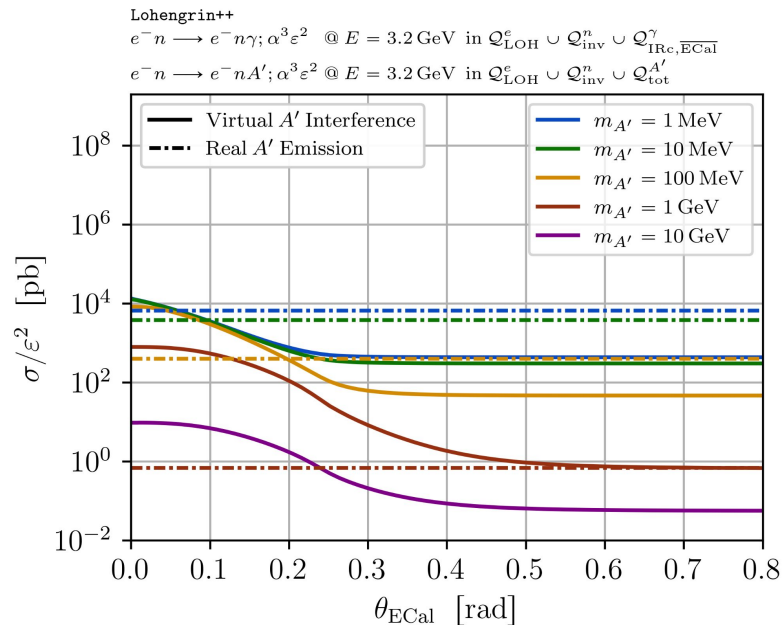
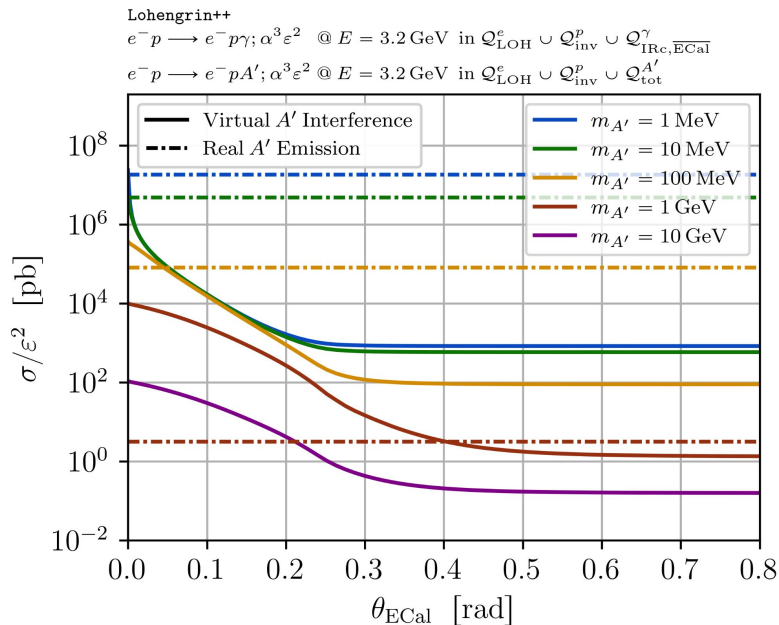
Interference: “Signal” from invisible γ (nucleus, LOH SR1)

$$\overline{|\mathcal{M}|^2}(\ell^- \mathcal{H} \rightarrow \ell^- \mathcal{H} \gamma; \alpha^3 \varepsilon^2) = 2 \operatorname{Re} \left\{ \left(\text{diagram 1} + \text{diagram 2} + \text{diagram 3} \right) \left(\text{diagram 4} + \text{diagram 5} + \text{diagram 6} \right)^\dagger \right\}$$



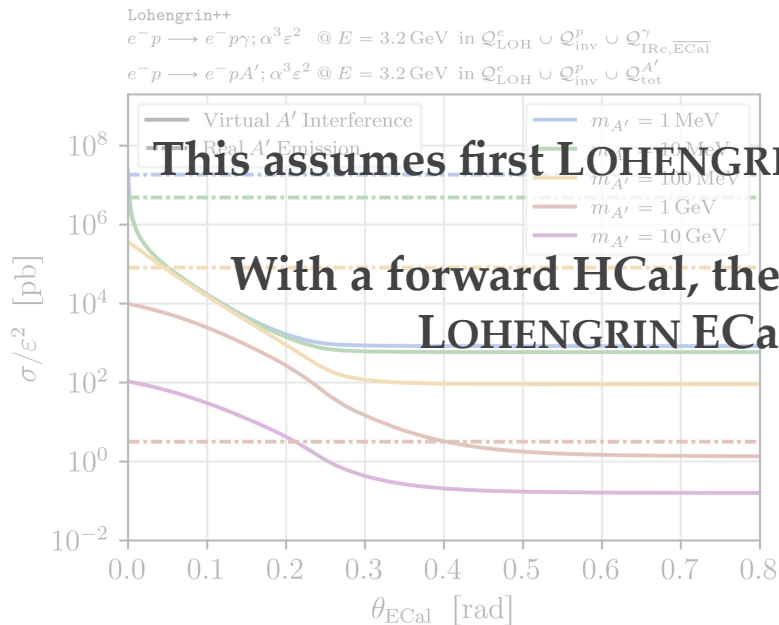
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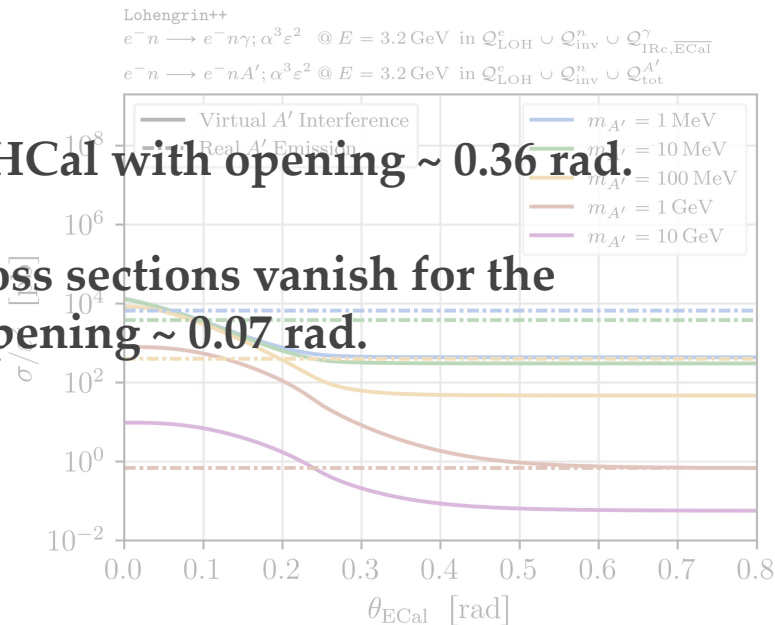
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This assumes first LOHENGRIN HCal with opening $\sim 0.36 \text{ rad}$.

With a forward HCal, the cross sections vanish for the LOHENGRIN ECal opening $\sim 0.07 \text{ rad}$.



Putting everything together...

- p_B : Momentum component perp. to magnetic field
- Assume forward HCal + LOHENGRIN ECal
- Nucleon scattering and VCS terms are negligible
- 1 GeV Dark Photon: Coherent interference term increases $S/\sqrt{S+B}$ significantly, but still no sensitivity.

