



# FIPs in the ALPs Round Table

Guillaume Rostagni 17 May 2023

French, living in the UK since 2014





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Hobbies include: hiking,







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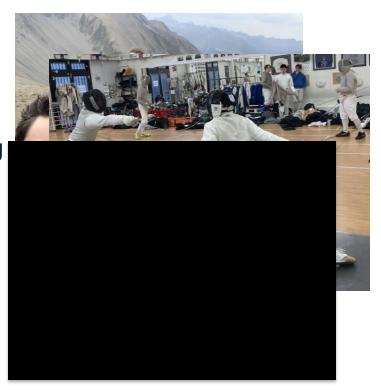






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3rd year PhD student at the IPPP, under supervision of Dr. Martin Bauer





Effects on new physics on Rydberg states

$$I = 1/2$$

$$\underline{n = 2, {}^{2}P} \xrightarrow{\text{bulliting bulling structure}} \sqrt{\frac{J = 3/2}{F}} \xrightarrow{F = 1} \sqrt{\frac{F = 1}{F = 0}} \sqrt{\frac{J = 1/2}{F}} \xrightarrow{F = 1} \sqrt{\frac{J = 1/2}{F}}$$

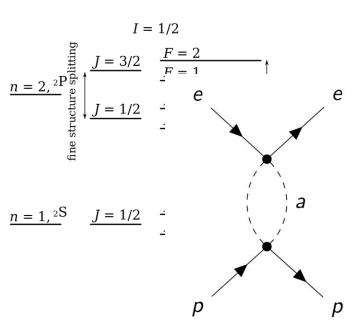
$$\underline{n = 1, {}^{2}S} \qquad \underline{J = 1/2} \qquad \underline{F = 1} \qquad \boxed{\uparrow}$$





Effects on new physics on Rydberg states

5th force interactions







Effects on new physics on Rydberg states

I = 1/2  $\underline{n = 2, 2} \text{Pigs} \downarrow \frac{J = 3/2}{J} \quad \underline{\frac{F = 2}{F = 1}} \qquad e$   $J = 1/2 \qquad e$ 

5th force interactions

$$\underline{n=1,{}^{2}S} \qquad \underline{J=1/2}$$

Spin-dependent DM detection methods ([arXiv:2304.06750])





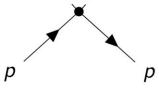
Effects on new physics on Rydberg states

 $\frac{1}{D} = \frac{2}{2} P^{\frac{1}{10}}$   $\frac{J}{J} = \frac{3}{2}$   $\frac{J}{F} = \frac{1}{2}$   $\frac{J}{J} = \frac{1}{2}$   $\frac{J}{J} = \frac{1}{2}$ 

5th force interactions

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Axion phenomenology (PRD 107 015007 (2023) + ongoing work)



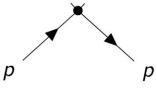


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