

Trapping of francium-221 atoms for the measurement of the electric dipole moment of the electron

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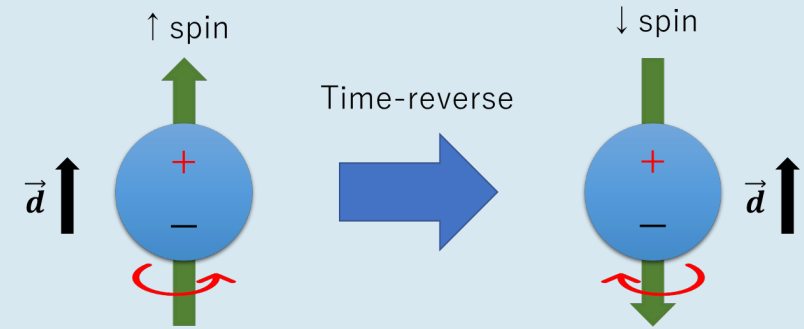
Electric **d**ipole **m**oment (EDM) of the electron

- T violation effect ($\leftrightarrow CP$ violation effect)
- Francium(Fr) atom enhances the EDM of the electron.

	Rb ^[1]	Cs ^[1]	Fr ^[2]
R	24.6	125.9	799

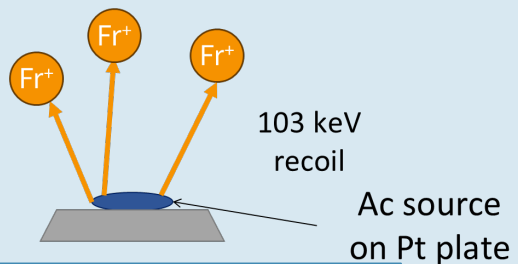
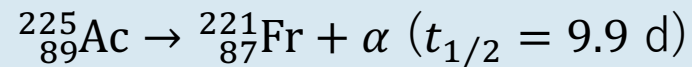
[1] H. S. Nataraj, *et al.*, J. Phys. Conf. Ser. **80**, (2007).

[2] N. Shitara, *et al.*, J. High Energy Phys. **2021**, 124 (2021).

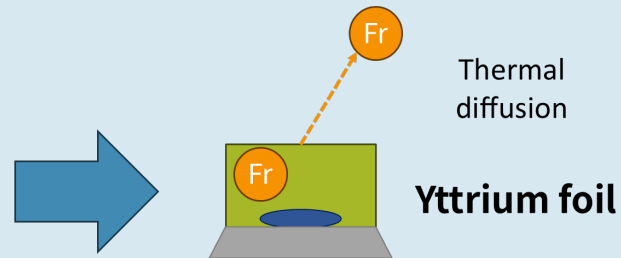


A high-intensity francium source is required for efficient trapping.

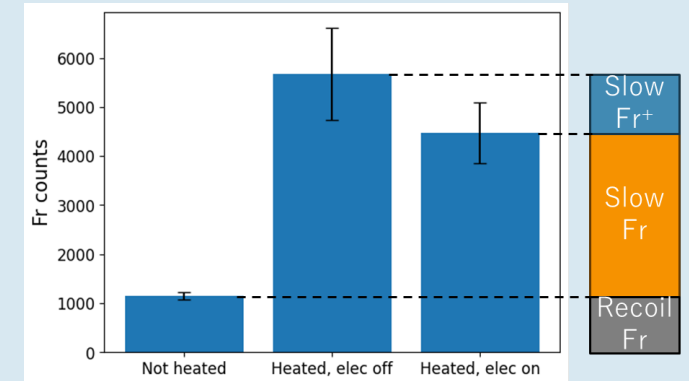
Atomic source of francium



- Too fast to trap Fr
- Released as ions.



Yttrium foil will stop and neutralize Fr^+ ions.



Neutralization efficiency
~ 73 % : achieved