Diamagnetic confinement in linear traps

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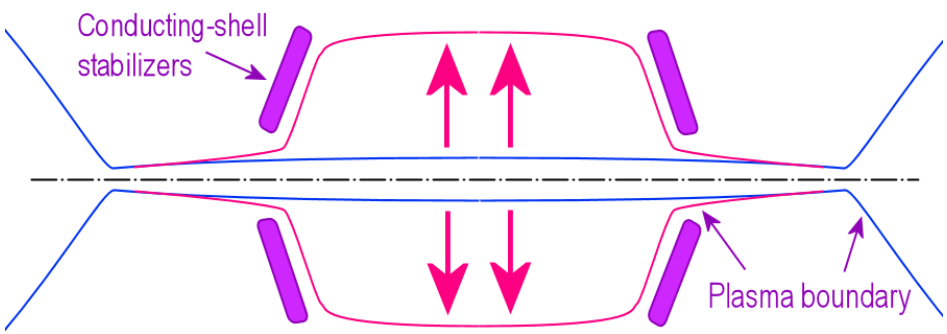

An FRC-like configuration (though without field-reversal) can be formed in mirrors by on-axis particle and power sources. No current drive is needed.

- Increasing the plasma pressure to β=1 leads to formation of a "bubble" with low field inside and a very large mirror ratio, $R_{eff} \sim 1/\sqrt{1-\beta}$;
- The bubble is formed near the minimum of the confining field. It can be made roughly cylindrical and can be stabilized by FLR effects and the conducting-shell stabilizers;
- The confinement time in such a ``bubble'' is increased to

$$\tau_E \approx \sqrt{\tau_\parallel \tau_\perp}.$$

- In case of classical radial diffusion and gas-dynamic axial losses, in a mirror with

$$T = 9keV,\ L = 30m,\ a = 1m,$$
$$B_0 = 10T,\ R = 2$$

the Lawson criterion is satisfied

$$n\tau_E \approx 1.4 \times 10^{15} > 10^{14}\,\mathrm{cm}^{-3}\mathrm{s}.$$