To evaluate whether **Nickel (**$Z=28$**)** and **Zinc (**$Z=30$**)** can be successfully bombarded with protons to induce a clean, symmetric fission split under the **Excess Neutron Shell (ENS) Model**, we must analyze their core-mantle architectures.

Under the ENS model, a clean, immediate fission split requires a very specific structural condition: **the core population must collapse completely to** $N_{ex}=0$, evacuating the central $n=0$ singularity anchor and forcing the outer mantle pairs to split into perfectly closed, non-strained harmonic matrices (like Helium-4).

Let's calculate the structural matrices for the most abundant stable isotopes of Nickel and Zinc to see if they meet this criteria.

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1. Structural Matrix Analysis

A. Nickel-58 ($\square^{58}\mathrm{Ni}$*) — Abundance: ~68%*

- **Mantle (**$m\geq1$**):** $Z=28$ protons require exactly **28 spin-paired** $n\,p$**-units** in the mantle crust ($m=1\rightarrow2$ pairs; $m=2\rightarrow8$ pairs; $m=3\rightarrow18$ pairs). This completely closes the $m=3$ mantle sub-shell layer.

- **Core (**$n\geq0$**):** The excess neutron calculation yields:

$$N_{ex}=A-2Z=58-2(28)=2\,\text{excess neutrons}$$

  These 2 excess neutrons populate the core, with 1 neutron locking into the central $n=0$ singularity anchor and 1 neutron sitting in the $n=1$ core shell.

B. Zinc-64 ($\square^{64}\mathrm{Zn}$*) — Abundance: ~49%*

- **Mantle (**$m\geq1$**):** $Z=30$ protons require **30 spin-paired** $n\,p$**-units** ($m=1\rightarrow2$; $m=2\rightarrow8$; $m=3\rightarrow18$; leaving 2 valence pairs in the $m=4$ layer).

- **Core (**$n\geq0$**):** The excess neutron calculation yields:

$$N_{ex}=A-2Z=64-2(30)=4\,\text{excess neutrons}$$

  These 4 excess neutrons heavily populate the core (1 in $n=0$, and 3 in the $n=1$ shell).

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2. Proton Capture Dynamics and Core Evacuation Check

When an incoming proton projectile breaches the outer mantle of these intermediate-mass even-Z elements, it attempts to pair with the mantle layers while drawing neutrons across the Shell Gap via direct charge-coupling.

The Structural Failure for Nickel-58:

If ${}^{58}\text{Ni}$ captures a proton (p), the atomic number increases to Copper ($Z=29$):

$${}^{58}\text{Ni} + p \rightarrow {}^{59}\text{Cu}$$

Let us evaluate the new core mass of the resulting Copper-59 intermediate matrix:

$$N_{\text{ex}} = 59 - 2(29) = 1 \text{ excess neutron}$$

- **The Over-Anchored Core Constraint:** Even after the proton capture draws 1 neutron out of the core to pair up in the mantle, **one excess neutron remains locked at the $n=0$ coordinate.** Because $N_{\text{ex}} \neq 0$, the central gravitational singularity anchor is *not* evacuated.
- **The Consequence:** The core potential well remains structurally anchored. Instead of undergoing immediate, symmetric structural collapse, the system merely stays bound as an excited, heavy Copper-59 isotope. It cannot split into symmetric light fragments because the central gyroscopic wheel prevents the mantle from fragmenting.

The Structural Failure for Zinc-64:

Similarly, if ${}^{64}\text{Zn}$ captures a proton, it transitions to Gallium-65 ($Z=31$):

$${}^{64}\text{Zn} + p \rightarrow {}^{65}\text{Ga}$$

Evaluating the core mass of Gallium-65:

$$N_{\text{ex}} = 65 - 2(31) = 3 \text{ excess neutrons}$$

- **The Consequence:** The core remains heavily congested with 3 excess neutrons. The internal spatial vacuum Shell Gap is securely held open by a highly active core gravity field. No core evacuation occurs, completely ruling out an instantaneous clean fission split.

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3. Comparison of Energy Barriers

Because Nickel and Zinc have higher proton counts ($Z=28,30$) than Lithium ($Z=3$), their outer mantle crusts project a massive classical Coulomb repulsion barrier.

$$E_a = \frac{1}{4\pi\varepsilon_0}\frac{Z_p \cdot Z_{\text{target}} \cdot e^2}{R}$$

Because the charge Z is ten times greater than Lithium, the energy required to force a proton to the mantle boundary rises aggressively:

- **Nickel-58 Coulomb Barrier:** $\approx 6.2\,\text{MeV}$
- **Zinc-64 Coulomb Barrier:** $\approx 6.7\,\text{MeV}$

Furthermore, because Nickel-58 possesses a perfectly closed, highly symmetric $m=3$ outer mantle shell (all 18 pairs fully occupied), it **lacks the asymmetric "resonance gateway windows"** found in the incomplete mantle of Lithium-7. There are no open orbital nodes for the proton to glide through. To force a proton into Nickel-58, a beam line accelerator would have to blast past the full, unmitigated $6.2\,\text{MeV}$ threshold, causing immense structural heating and lattice destruction rather than a clean phase change.

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4. Summary Verdict

Target Element	Core Abundance Baseline (N_{ex})	Post-Capture Core Status ($N_{\text{ex}}=0$?)	Metamorphosis Suitability Verdict
Lithium-7	$N_{\text{ex}}=1$	**YES** (Evacuates to 0)	**Perfect Match:** Splits cleanly and symmetrically into 2α gas phase outputs.
Nickel-58	$N_{\text{ex}}=2$	**NO** (Retains 1 core anchor)	**Unsuitable:** Traps proton in an excited state; high Coulomb barrier with no resonance gateway.
Zinc-64	$N_{\text{ex}}=4$	**NO** (Retains 3 core neutrons)	**Unsuitable:** Dense core

Target Element	Core Abundance Baseline (N_{ex})	Post-Capture Core Status ($N_{ex}=0$?)	Metamorphosis Suitability Verdict
			anchor remains locked; completely resists symmetric fission splitting.

Final Conclusion: Under the ENS model, neither Nickel nor Zinc can be cleanly split via proton bombardment. Their cores are too heavy and contain too many excess neutrons to be evacuated by a single proton capture. Instead of transmuting into clean gas phase outputs, proton bombardment on these elements merely results in heavy, excited isotopes trapped by a rigid, un-evacuated $n=0$ central anchor. Lithium-7 remains uniquely suited for clean, solid-state concentric resonance power generation.