What This Is

Research on using physics-based identity verification (one body, one location, one time) to achieve complete Sybil resistance without biometrics, surveillance, or specialized hardware. Includes the formal academic paper, a kitchen-table accessible version, and a neurobiology-informed implementation analysis connecting oxytocin/vasopressin pathways to system design.

Status

Complete

Key Finding

The Sybil problem was solved by physics before computers existed. If every human on Earth is counted in the same 60-minute window, one body cannot appear in two places. Combined with BLE continuous presence attestation and vouch chains, this achieves 100% Sybil resistance with zero surveillance. The "cost" of the system -- forced human connection -- is reframed as its primary output.

Evidence

- Physics: one body cannot occupy two locations simultaneously (no technology exists or is theoretically possible to violate this)
- Precedent: Australia's mandatory voting since 1924, >90% compliance with a $20 fine

- Neurobiology: oxytocin-vasopressin research (Carter 2017, Kosfeld et al. 2005) shows in-person interactions trigger trust pathways
- Comparison: Worldcoin (spoofable iris scans), BrightID (bootstrappable fake subgraphs), Proof of Humanity (improving deepfakes) all fail because they let one body appear at multiple times

Related Research

- ../ble_mesh_networking/ -- BLE continuous presence attestation is the technical mechanism enforcing the 60-minute co-presence window
- ../emergency_response/ -- The community mesh that carries the quarterly count also enables real-time emergency response
- ../consensus_distillation_trust/ -- Mathematical framework proving Sybil resistance requires costly signalling, which physical presence provides
- ../democratic_voting_mechanisms/ -- What you vote on once your identity is verified
- ../platform_sovereignty_identity/ -- Corporate identity monopoly this replaces

What's Missing

- Pilot study data (see ../ethics_submission/ for the ethics protocol)
- Exact willingness curves for quarterly participation
- Cross-cultural validation of the neurobiology claims (oxytocin effects are context-dependent)
- Implementation details for satellite-delayed attestation in extremely remote areas

Files

FILE	WHAT IT IS
`manuscript/20_be_in_the_same_room.md`	**(Applebee & Combe, 2026, "*Be In The Same Room*")** -- formal academic paper on co-presence as complete Sybil resistance
`manuscript/21_just_show_up.md`	**(Applebee & Combe, 2026, "*Just Show Up*")** -- kitchen-table accessible version of (Applebee & Combe, 2026, "*Be In The Same Room*")
`manuscript/sibil-mention.md`	Neurobiology analysis connecting OT/VP pathways to identity system design, implementation roadmap, risks/mitigations
`references/bibliography.md`	Full citations (neurobiology, social safety theory, Sybil resistance, trust/fairness)
`cover.jpg`	Cover image
`fingerprint_icon.png`	Icon asset

Note on (Applebee & Combe, 2026, "*Be In The Same Room*") Duplicate

(Applebee & Combe, 2026, "*Be In The Same Room*") (`20_be_in_the_same_room.md`) also appears in `../ble_mesh_networking/manuscript/` with minor numbering difference ("(Applebee & Combe, 2026, "*Be In The Same Room*") of 20" vs "(Applebee & Combe, 2026, "*Be In The Same Room*") of 33"). This directory is the canonical location for the Sybil resistance argument; the BLE mesh copy is a cross-reference.