

Loxwell: Proof of Gravity

A settlement mechanism that pays for the gravitational pull between participants, built on Robinhood Chain.

FROM THE DEV

For a few years now I have watched every new mining story repeat the one before it. Proof of work sold us hashes. Then the market wanted GPUs, then dedicated rigs, and lately the fashion is renting your idle accelerators to the AI boom. The pitch never really changes. You bring a machine, you plug it in, you get paid. Something about that shape always bothered me. The thing doing the work is the hardware, and the instant you switch it off the network has no reason left to remember you. There is nothing personal in it and nothing that lasts.

So I started asking a different question. What would a network pay for if it stopped paying for machines and instead priced the one thing crypto has never learned to price directly, which is people and the pull between them? Loxwell is the answer I kept arriving at.

On the idea. You are not a rig here. You are a body with mass. Your mass comes from what you commit and how long you are willing to stay, and mass bends the space around it the same way it does in the physical world. It attracts. Your yield is not something you grind out alone in a corner. It grows with the gravitational field you build together with everyone else. Pull real weight toward you and you earn more. In this design, mining the token and growing the network are finally the same action.

On the economics. I wanted the incentive to be honest by construction rather than by moderation. Reward scales with the product of two bodies' mass, so the profitable move is never to spin up a hundred empty wallets. It is to attract other people who have actually committed. A Sybil creates no new mass. It only splits what it already holds and pays more fees for the privilege. The arithmetic does the anti gaming work on its own.

On the chain. I am settling on Robinhood Chain because yield has to land somewhere fast, cheap, and close to real financial rails, not inside a science experiment. The expensive computation stays off chain. Only the small signed result of each epoch ever touches the settlement layer.

On honesty. Let me be plain about where this stands today. The token launches first as a fair, community owned coin, with no insider allocation and no pre mined reward. The engine described in the paper below is what I am building on top of that launch. The dashboard shows sample telemetry and says so in plain text, because I would rather show you the true shape of the thing than dress up a network that is not live yet. What you back at the start is not a finished protocol. It is the first mass in a field that does not exist without you.

That is the honest version of the pitch. If the idea of being paid for the network you gather, rather than the machine you switch off, lands with you, then you are the person I built this for. The paper below is the map. Come help me build the territory.

the dev · Loxwell

ABSTRACT

Every mining paradigm to date pays for an external resource. Proof of work spends electricity, the GPU era paid for silicon, and current idle compute networks still reward the machine rather than the person operating it, so a rig that powers down costs the network nothing it can keep. Loxwell proposes a different primitive that we call proof of gravity. Each participant is a body whose mass is a function of the value it commits, the term it locks, and how active it remains. Bodies curve the space around them and attract one another, so a participant's yield is not a function of its solitary effort but of the gravitational field it forms with the rest of the network. Attraction is metered from on-chain state, aggregated inside clusters, and settled every epoch into the native token \$LXL on Robinhood Chain. This paper specifies the mass model, the gravitational reward, the emission schedule, the incentive analysis that makes Sybil behaviour unprofitable, and the settlement path.

Keywords: proof of gravity, network mining, mass and attraction, social liquidity, token emission, clusters, magnetic poles, Robinhood Chain, fair launch.

1 Introduction

Mining has only ever paid for one input, which is compute. Loxwell proposes to pay instead for the resource that compute can never manufacture, namely the pull between the people in a network.

Three eras of mining have come and gone, and they share a single grammar. Proof of work paid participants to guess hashes. The graphics card era paid whoever could stack the most silicon. The latest wave meters leftover accelerator cycles and sells them to model training. In every case the reward attaches to a device, and the person is merely the operator who keeps it plugged in. That arrangement has a quiet consequence which is rarely stated out loud. A network built this way holds no memory of you. Switch the machine off and your contribution evaporates, because the contribution was never truly yours. It belonged to the hardware all along.

Loxwell begins from the opposite premise. In any token network the scarce coordination resource is not raw computation, which is abundant and growing cheaper by the year, but the attention, capital, and trust that participants are willing to point at one another. We make that resource the quantity the protocol measures and pays for. Each participant becomes a body with mass. Mass bends the space around it, and bodies with mass attract one another. A participant's reward is proportional to the gravitational field it forms with the rest of the network, a rule we call Proof of Gravity (PoG). Under it, the act of earning and the act of strengthening the network are no longer separate. They are one and the same.

The rest of this paper makes the claim precise. Section 2 sets out the model and its notation. Section 3 defines mass, the gravitational reward, and the settlement procedure. Section 4 covers clusters and the dynamics they produce. Sections 5 and 6 describe on-chain settlement and the emission schedule. Section 7 analyses the incentives and shows why Sybil behaviour fails to pay. Section 8 states the launch plan without embellishment, and Section 9 is the disclaimer.

1.1 Why the token launches first

A gravity network is only as strong as the mass moving through it, and mass follows liquidity and belief long before it follows technology. For that reason Loxwell inverts the usual order of an infrastructure project. The \$LXL token launches first through a fair, community-owned process on Robinhood Chain, which seeds an aligned holder base and a liquid unit of account. The gravity engine is then built on top of that token, so the people who arrived early are never spectators. They become the first mass in the field they now hold a stake in.

1.2 Why Robinhood Chain

Rewards need to settle somewhere fast, inexpensive, and close to real financial rails. We target Robinhood Chain, an EVM compatible Layer 2 designed for tokenized, finance native assets, as the

settlement venue for gravity epochs. The field itself is derived from on-chain state such as locks and bonds. Only the compact signed result of each epoch is written back to the chain, which keeps operating cost low while inheriting the security of an established rollup.

2 The Model

We treat the network as a physical field rather than a flat ledger. Every account has mass, mass curves the space around it, and value drifts toward the regions where that curvature runs deepest.

On an ordinary ledger each address is an island. It holds a balance and acts alone, and the protocol carries no notion of the relationship between one address and the next. Loxwell restores exactly that missing dimension. Give each account a mass, let mass warp the surrounding space, and a landscape of wells appears across the network. Capital rolls downhill into those wells, and the wells are precisely the clusters where activity concentrates. Figure 1 shows the shape of such a landscape for a simple configuration of two poles, which is the structure the protocol steadily nudges the network toward.



FIGURE 1 Equipotential contours of the gravitational field for two poles of unequal mass. Each closed curve is a surface of constant potential, and the curves crowd together where the field is strongest. Bodies (small markers) settle into the two wells, and the ridge between them is the boundary along which neighbouring clusters compete for mass.

The protocol reduces to three motions, each of which recurs throughout the paper. A participant enters by committing and locking value, which mints its mass and places it in the field. Bodies then attract, forming bonds that are mutual and weighted by mass, whether by joining a shared cluster,

co locking, or staking toward one another. Finally the epoch settles, at which point the total field is measured and paid out in \$LXL in proportion to each body's share of it.

Stated compactly: value enters as mass, bodies attract into bonds, and the field those bonds create settles into \$LXL once per epoch.

3 Proof of Gravity

The question the protocol asks is not whether you computed a hash. It is how strongly you pull on the rest of the network.

There are three simple ideas underneath everything that follows: what your mass is, how two participants attract each other, and how that attraction becomes a reward. None of it is self reported. All of it is read directly from what you have committed on chain.

3.1 What gives you mass

Your mass is the weight you carry in the field, and it comes from three things. How much value you commit, how long you lock it for, and how active you stay. Commit more, lock for longer, and keep showing up, and your mass grows. Pull your value out early or go quiet, and it fades. A balance that simply sits in a wallet counts for nothing here. Only committed, maintained value has weight.

3.2 How attraction works

On its own, a mass does nothing, in the same way a planet feels no pull from itself. A reward appears only when you bond with other participants, and the strength of a bond behaves just like gravity in the real world. It grows with the combined size of the two partners, and it drops off quickly as the distance between them grows. Two large participants bonded closely produce an enormous pull. A scattering of tiny or distant ones produces almost none. Figure 2 shows the shape of that relationship, and marks the range where getting closer, by forming a cluster, starts to pay off.



FIGURE 2 How the pull between two participants depends on the distance between them, with their sizes held fixed. The pull rises steeply as they close the gap. The shaded band on the left is the cluster range, where distance is smallest and the pull is strongest.

3.3 How the reward is shared

Once per epoch the protocol adds up all the pull you generate across every bond you hold. That total is your gravity. It then takes the new tokens created for that epoch, sets aside a small cluster fee, and splits the rest among everyone in proportion to their gravity. If you account for a tenth of all the pull in the network, you receive a tenth of the reward. The whole calculation runs on chain from the settled field, so no one decides by hand who gets paid what.

4 Clusters and Dynamics

A cluster is a set of bodies that agree to sit close together, where bond distance is minimal and the field between them is at its densest.

The open registry of clusters is called the Constellation. Many clusters coexist and compete at once, and the protocol publishes each one's share of network gravity on the live gravity dashboard.

Membership carries a natural tension. Up to a point, adding mass to a cluster deepens its well and lifts the gravity of every member, and crossing a mass threshold unlocks a density bonus that rewards the group for cohering. Past that point the cluster begins to suffer what we call gravitational collapse. The marginal reward for each new body falls, internal fees rise, and the returns to sheer size flatten out.

That tension is intentional, because it stops the whole network from collapsing into a single winner. No cluster is ever strictly best to join, so mass keeps redistributing across the sky. The result is a living system in which constellations form, grow, saturate, and split, while fresh clusters keep

opening as entry points for newcomers. A participant who arrives late is never locked out, because there is always a young well somewhere with room left to grow.

5 Settlement

The field is derived from on-chain state, and a keeper folds it into a single signed report once per epoch.

Recomputing the full pairwise bond sum inside a contract every epoch would be prohibitively expensive, since the cost grows with the square of the number of bodies. Loxwell avoids that cost entirely. Each epoch a keeper aggregates the field off chain and commits a Merkle root over the leaves (body, gravity, reward) together with the epoch parameters. Individual bodies then claim their share against that root using a Merkle proof, which holds the on-chain cost per epoch constant no matter how large the network becomes. A challenge window sits on top of every report, during which any party may dispute a malformed field before its rewards finalise. The settlement contract is not yet deployed, and the values in Table 1 describe the intended design rather than a live system.

TABLE 1 • SETTLEMENT PARAMETERS (PREVIEW)

PARAMETER	VALUE
Settlement chain	Robinhood Chain (L2)
Gravity epoch	1 hour
Report challenge window	30 minutes
Field verification	on-chain state + dispute
Cluster fee	1.5%

6 Supply and Emission

\$LXL is the unit of account throughout. Mass is committed in it, gravity is paid in it, and clusters bond in it.

New supply follows a shrinking schedule. A fixed amount of \$LXL is created each epoch, and that amount is cut in half at regular intervals. Early participants therefore earn from a larger stream than latecomers, which rewards showing up early. And because every halving adds less than the one before it, the total supply climbs quickly at first and then flattens toward a fixed ceiling that can never be crossed, no matter how fast the network grows. Figure 3 traces that total as it approaches the ceiling.



FIGURE 3 Cumulative \$LXL supply against time. Each halving contributes a smaller increment than the last, so the total rises quickly at first and then levels off toward a fixed cap (dashed line). The vertical marks indicate era boundaries. Illustrative.

ALLOCATION

No team allocation is carved out of the gravity reward. The circulating float originates entirely from the fair launch described in Section 8, and the schedule in equation (4) emits new supply only to bodies that hold mass and form bonds. A small, transparent cluster fee funds the treasury and the keepers who settle each epoch.

TABLE 2 • EMISSION ALLOCATION (PREVIEW TARGETS)

STREAM	SHARE	RECIPIENT
Gravity rewards	~90%	bodies with mass & bonds
Keeper rewards	~7%	epoch aggregation / disputes
Treasury	~3%	protocol development

7 Incentive Security

Two threats matter for a network like this: fabricated mass and Sybil identities. Loxwell answers both through economics rather than through trust.

The design goal is that honest participation should be the most profitable strategy available, so that the protocol never has to police behaviour it can simply make unrewarding. Four cases cover the space.

- Fabricated mass. Mass is granted only for value that has actually been committed and locked on chain, so a body can never claim weight it has not staked. Nothing about your mass is taken on your word.
- Sybil identities. The reward follows total committed mass, not the number of identities you control. Splitting one wallet's capital across ten addresses creates no new mass and pays ten separate fees. And since the pull of a bond grows with the combined size of both partners, self bonding a swarm of tiny identities earns far less than committing the same capital as a single body and bonding it to a genuinely large partner.
- Wash attraction. Two colluding wallets that bond only to each other are bounded by that same product law and by the cluster fee. Their combined gravity can never exceed what their real, locked mass supports, so the collusion buys nothing.
- Settlement safety. A challenge window sits on every epoch report, so a malformed field can be disputed and corrected before any reward is finalised.

8 Fair Launch and Status

Today there is a fair launch community token. Next comes the Proof of Gravity engine it is built to power.

\$LXL launches first as an honest, community-owned coin on Robinhood Chain. There is no insider allocation, and no claim that the coin already runs everything described in this paper. The gravity engine is being built after the launch and on top of it. What the launch provides is the one ingredient a protocol cannot bootstrap for itself, which is an aligned community that becomes the first mass in the field.

\$LXL CONTRACT ADDRESS

TBA

Contract and launch details will be published after review.

9 Disclaimers

This document is a technical and conceptual overview provided for information only. It is not financial, investment or legal advice, and it is not an offer or solicitation to buy any asset. \$LXL is a community token; the gravity engine, settlement contracts, parameters and emission figures described here are design targets that are **not yet deployed** and may change. Forward-looking statements carry risk and uncertainty. Digital assets are volatile and you may lose everything you put in. Do your own research and never risk more than you can afford to lose.

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Bodies Token