# How Far VERSF Has Come

*A plain-English account of an exceptionally ambitious scientific programme*

**Companion to the August 2026 Standard Model Derivation Audit**

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### Why getting this far matters

VERSF has taken on one of the hardest possible scientific tasks: to rebuild the rulebook of matter and forces from deeper ideas, without feeding the known answers into the calculation. It has already moved far beyond a speculative outline. The programme has built a connected mathematical system for creating and preserving facts; recovered the required matter roles and three force systems inside an anonymous structure; worked out how those forces fit together without hidden double-counting; constructed a repeating record-making engine; run a large candidate model at four levels of detail; produced a definite relative mass pattern and quark-change table through two independent calculations; and proved several exact limits showing what the present rules can and cannot decide. Reaching this point is a major achievement. The final theory is not yet complete, but the remaining frontier is now sharply defined and open to decisive tests.

*This report deliberately avoids specialist terminology. The detailed technical names, equations and evidence appear in the accompanying audit.*

## 1. Why this is such a vast challenge

Modern physics has an extraordinarily successful rulebook called the Standard Model. It describes the smallest known ingredients of matter and three forces: the force behind electricity and magnetism, the force responsible for radioactive change, and the force that binds the centre of an atom.

Deriving that rulebook from deeper ideas is not one calculation. A successful theory must explain why the required kinds of matter exist, why they appear in repeated sets, why they carry their particular properties, why three different forces act on them, how masses arise, why some kinds can change into others, why certain particles are never found alone, and how all of those answers remain consistent when calculations are made at different scales. It must do this from one connected starting point rather than through separate patches.

That is comparable to being shown the workings of an extraordinarily accurate machine and being asked to reconstruct the factory, materials, design rules and assembly process that produced it - without copying the finished machine as the blueprint. Most proposed deeper theories address only one corner of this task. VERSF has attempted the whole chain and has already built working links across much of it. That is why reaching the present stage is scientifically significant, even though the final closure is still ahead.

| 1. Starting rules | 2. Working machine | 3. Predictions | 4. Test against nature |
|---|---|---|---|
| A small set of proposed ideas about information and permanent records. | A mathematical system that turns those ideas into possible events. | Numbers for matter, forces and how different kinds interact. | Only after the earlier steps are frozen are measurements consulted. |

VERSF begins with a much smaller set of ideas about information, possible events and permanent records. It is judged by the order of the arrows: the early rules must produce the working machine, the machine must produce the predictions, and measurements may be consulted only afterwards. A later calculation may carry forward an answer produced earlier; it may not invent a missing answer because the final comparison needs one.

## 2. What does “derived” mean in this report?

The word “derived” is often used too loosely. This report uses three simple levels:

- A working construction means that a complete mathematical example has been built and tested.
- A conditional derivation means that a result follows from a clearly stated set of earlier rules, without adjusting the answer to match measurements. The remaining question is whether those earlier rules are themselves uniquely forced.
- A full first-principles derivation would mean that the deepest starting ideas select one complete rulebook, one physical branch, one measurement scale and one final set of predictions.

**Why this distinction matters**

A beautifully stable calculation can still be only one possible model among many. Stability shows that the model is well defined. It does not show that nature, or the deepest rules of VERSF, had no alternative.

# 3. The simple scorecard

| Question | Answer | What that means |
|---|---|---|
| Has VERSF moved beyond a broad idea into a connected working programme? | Yes | It now links proposed starting rules, permanent-record machinery, matter roles, force structure, mass patterns and numerical tests in one disciplined chain. |
| Has it built complete mathematical machines and tested them at several levels of detail? | Yes | Several constructions are complete, independently checked and stable as the calculations are made finer. |
| Has it calculated a real mass pattern and quark change-table without reading the measured answers while running? | Yes, conditionally | One frozen calculation returns a definite answer from the framework's present rules, through two separately implemented routes. |
| Has it obtained exact results about how the three force systems fit together and about shortcuts that cannot work? | Yes | The programme has exact structural results and exact no-go results, so several tempting dead ends are now permanently closed. |
| Has it completed a unique derivation of the known particle world? | Not yet | The deepest rules have not yet selected one complete master rule, one basic ruler and every missing physical mechanism. |
| Does its admitted quark change-table match nature well enough? | Not yet | It captures important broad features but misses two sensitive entries badly. |
| Does the programme now know much more precisely what remains? | Yes | The open frontier has been reduced to named mechanisms, sealed calculations and clear pass-or-fail tests. |

The achievements below span almost the whole route from the earliest proposed rules to testable numbers. Each would be a substantial research project on its own. Their importance lies not only in the individual results, but in the fact that they have been developed as parts of one connected programme with explicit tests, failures and revision rules.

# 4. What has genuinely been accomplished?

## 4.1 A coherent map of matter and forces

Within the mathematical structure it currently uses, VERSF can separate the anonymous building blocks into the familiar kinds needed for known matter. It finds the expected charged matter roles in three repeated copies and a small set of allowed ways for matter to complete a permanent record. It also reconstructs the mathematical generators of the three non-gravitational forces from the anonymous pattern.

The global way those three force systems fit together has been worked out exactly. In simple terms, the framework has identified how to combine them without counting the same hidden transformation more than once, and it has classified the large-scale twisted arrangements that are allowed.

The important limitation is that much of this was recovered inside a rich mathematical carrier that had already been supplied. The roles were found blindly inside that carrier; the carrier itself has not yet been derived from nothing.

### 4.2 A record-making engine that can keep operating

An early version of the model could make one permanent record and then stopped. That was not suitable as a model of a world in which new facts keep forming. A later construction repaired this: it keeps the completed record in a permanent ledger while reopening the working part of the system to make the next record.

This is more than a verbal idea. The repeated record-making process was built as a complete mathematical machine, tested at several levels of detail, and shown to retain enough independent information to support the much larger working model.

The work also proved an exact failure of the original design. The old machine did not respond at all to the fields it was supposed to describe: it was mathematically “blind.” A replacement was then built whose behaviour changes with the state it encounters and which can distinguish all force-related directions in the finite model at the tested point.

### 4.3 Stable calculations at several resolutions

A large candidate model was run at four increasingly fine resolutions. Its main outputs remained positive, stable and approached a clear limiting answer at the expected rate. This matters because it shows the results are not random numerical noise or an accident of one coarse calculation.

The same work also produced a vital warning: a stable answer is not automatically the uniquely correct answer. The model can converge extremely well while still leaving several equally valid underlying constructions.

### 4.4 A real calculation of the charged-matter pattern

Scientists call the tiny ingredients inside protons and neutrons “quarks.” There are six named kinds, arranged in three pairs. VERSF has produced one frozen calculation that returns the relative mass pattern of the charged matter particles and a single table describing how the three paired quark types change into one another.

No measured mass, change-rate or matter-antimatter number was available to the calculation while it ran. Two separately implemented mathematical routes returned the same underlying result to about fourteen decimal places. That makes this a genuine conditional derivation, not merely a table typed in by hand.

The result is definite enough to fail. It reproduces the broad pattern, including the largest change-rate, but it makes two important entries much too small. On a standard combined score where single digits would indicate a good fit, the returned table scores about 291.

> **Why a wrong definite answer is still progress**
>
> A framework that can be adjusted to fit anything teaches very little. A framework that produces one clear answer, which can then be shown to be wrong, is scientifically exposed. It tells us exactly where the present rules lack a required mechanism.

### 4.5 One uniquely shaped simplest correction

The work has also found a permanent mathematical result about how the failed change-table could first be corrected. A direct correction is forbidden by the symmetry of the six-point source. The first allowed correction appears only after combining the source with itself, and at that simplest level there is exactly one possible shape. It divides evenly among the three branches.

Pointing that correction in one particular direction gives a dramatically better numerical result. But the framework has not derived that direction. The local mathematics is exactly even-handed: it can carry a direction that has been supplied, but it cannot choose one. The attractive corrected table is therefore a useful diagnostic, not an admitted prediction.

### 4.6 Exact limits and “cannot be decided from here” results

Several of the strongest papers do not add a new prediction; they prove that a proposed route cannot decide the answer. These are valuable because they prevent the same failed idea being tried repeatedly under different names.

- The present positive calculations cannot choose between two mirror-image branches. A new direction-sensitive coupling is required.
- The current information cannot determine why quarks are never seen alone or how strong that effect is. Many different answers, including no effect, remain compatible with the same local results.
- Knowing that a large information space has enough room for the model does not identify which embedding is physical. The work constructs many exact alternatives that reproduce the same broad response while differing at the level of individual events.
- A full-support readout that keeps every direction cannot select a special one. Support is not selection.

### 4.7 One unexplained matter-antimatter setting is removed under a clear condition

Conventional physics allows a hidden setting that could make matter and antimatter behave differently inside atomic nuclei, yet measurements show no such effect. In the retained VERSF model, if the final global theory assigns ordinary non-negative probabilities to a set of allowed large-scale arrangements that is rich enough to generate them all, that setting is forced to zero rather than tuned to be tiny.

This is a strong conditional result. It does not yet construct the full infinite real-world theory, but it shows that an ordinary positive completion of the present finite model cannot carry a non-zero value of that setting.

### 4.8 The neutrino calculation has a complete instruction manual

Neutrinos are extremely light particles that pass through ordinary matter very easily. The programme has now written a complete, checkable procedure for taking a fully supplied neutrino mass object and calculating its masses, its change-pattern, its heavy partners, and the uncertainty of the result.

The procedure is ready, but the source object is not. The present framework does not directly return the required neutrino matrices. Thirty independent real choices remain free. The work also proves that almost any desired answer can be manufactured if those inputs are supplied afterwards, so matching measurements would mean nothing without their prior derivation.

# 5. What has not been accomplished?

## 5.1 One unique complete rulebook has not been selected

This is the largest gap. VERSF has several powerful working constructions, but it has not yet proved that its deepest starting ideas force one and only one complete version. Large families of different underlying maps can reproduce the same high-level behaviour. The missing work is not more decimal places; it is new information from the earlier action.

## 5.2 The framework does not yet decide the exact state offered before an event

Before a permanent event occurs, the present mathematics describes a family of possible internal states. It does not yet calculate the exact state that is offered, the cost attached to each alternative, or the relative direction information that makes one alternative more likely than another. Because these missing choices control the quark correction as well as the wider model, they cannot be solved inside the quark calculation alone.

## 5.3 Copying and long-term stability are not derived

The model can represent a permanent record and can mathematically copy it. It has not yet derived when copying occurs, what maintains the copies, what copying costs, or why one recorded fact remains stable across many later interactions. A convenient copying rule is not enough; the rule must come from the same underlying action.

## 5.4 The theory has not selected its own ruler

The framework currently contains several candidate values for one of its internal basic lengths: roughly 63, 84 and 88 millionths of a metre. These are all around the width of a human hair. This length is not the size of an atom or a quark; it is an internal scale of the proposed record-making structure.

The candidates come from different routes and assumptions. The theory has not yet shown which value, if any, its deepest rules select. Nor has it fully derived the conversion from its own dimensionless action and timing quantities into ordinary seconds, energy units and real particle masses.

## 5.5 The observed quark change-pattern is not reproduced

The admitted calculation gets important broad features right but misses the matter-antimatter-sensitive part badly. The uniquely shaped correction can repair the numbers when given the favourable direction, but the theory does not currently choose that direction. The honest prediction therefore remains the poorer table.

## 5.6 Neutrino masses and changes are not predicted

The neutrino calculation cannot be run as a physical prediction until the same earlier rule directly produces the required mass blocks, selects the relevant branch, and fixes the absolute scale. Supplying attractive matrices would turn the exercise into fitting rather than derivation.

## 5.7 The force that traps quarks is not derived

The machinery can produce a linearly increasing energy cost if one missing wall cost is granted. But the present corpus cannot calculate that cost, and it cannot identify the strength or even the sign of the relevant gap from existing local information. A proposed route through entropy was tested and failed.

## 5.8 The full real-world prediction pipeline is not complete

The programme has a finite, well-behaved model and several transport calculations. It has not yet built the full infinite theory needed for all quantum effects, nor a single common conversion system that carries every internal result to the conventional quantities quoted by experiments. Exact final masses, lifetimes, scattering results and a full shared uncertainty table therefore remain downstream work.

## 6. How far along is the programme?

A single percentage actually understates the character of this programme. The task is not a checklist of equally easy boxes. Some completed results required building entire mathematical languages, proving that proposed routes were impossible, or running large sealed calculations that returned definite answers. Other apparently small missing items are load-bearing: one unresolved choice can prevent a whole chain from becoming a physical prediction.

| Layer of the work | Planning range | Plain-English meaning |
|---|---|---|
| Mathematical structure | **85-90%** | Most of the broad framework has been built and tested. |
| Working calculations inside the present framework | **70-75%** | Many major calculations now run, but some depend on earlier choices that are not yet uniquely proved. |
| Unique selection from the deepest starting rules | **35-40%** | The framework has not yet shown that its own foundations force one complete physical rulebook. |
| Overall planning estimate | **60-65%** | A rough work-programme estimate, not a probability that the theory is correct. |

The fair summary is that VERSF is far beyond an early-stage idea. It is highly advanced as a mathematical research programme, substantially advanced as a working conditional account of matter and forces, and still incomplete as a uniquely forced physical theory. The distance already travelled is considerable; the remaining distance is difficult because it contains the final selection, scale and real-world certification problems.

## 7. What needs to happen next?

The detailed audit identifies sixteen technical papers. In everyday terms, they fall into eight jobs. Several can begin in parallel, but they must eventually meet inside one common rule rather than being solved by unrelated patches.

| | Next job | The simple question it must answer |
|---|---|---|
| 1 | **Decide what is prepared before an event** | What exact internal state is offered, what does each option cost, and what relative timing information makes one outcome more likely than another? |
| 2 | **Derive copying and long-term stability** | When a permanent record is copied into its surroundings, what causes the copying, what does it cost, and why do the copies remain stable? |
| 3 | **Prove one complete master rule** | Do all parts of the working model come from one earlier rule, or are there several equally valid models that give the same broad results? |

| | Next job | The simple question it must answer |
| --- | --- | --- |
| 4 | **Select the theory's basic ruler** | Which of the competing candidate sizes is selected by the theory itself, without borrowing a measured length? |
| 5 | **Connect internal numbers to real masses and force strengths** | How do the theory's dimensionless results become kilograms, seconds, electron-volts and measured force strengths? |
| 6 | **Produce the extremely light neutral particles directly** | Can the same rule generate their masses and their change-pattern, rather than accepting supplied matrices? |
| 7 | **Explain why quarks are never found alone** | What exact part of the underlying rule creates the ever-growing energy cost of separating the ingredients of protons and neutrons? |
| 8 | **Join everything in one sealed run** | Can one frozen calculation return all sectors, carry them into a common measurement system, and face the data without changing any rule afterwards? |

## 8. What should not be done next?

- Do not scan more possible directions until one improves the quark table. The favourable direction is already known; the missing result is why the theory selects it.
- Do not rerun the same large candidate at higher precision. Its numerical convergence is already established; the missing pieces are structural.
- Do not calculate neutrino results from supplied matrices and call that a prediction. The present work proves that almost any target can be reproduced that way.
- Do not treat one of the candidate basic lengths as physical merely because it is attractive or close to another route.
- Do not use an inverse mathematical construction as proof that the earliest rules generated it. Many different constructions reproduce the same later response.

## 9. What can be said honestly today?

### Claim 1

VERSF has built a substantial and serious mathematical framework connecting information, events, permanent records, matter roles and force structure.

### Claim 2

It has produced a genuine conditional calculation of the charged-matter mass pattern and one quark change-table without allowing the measured target into the running calculation.

### Claim 3

That returned table does not match nature well enough. The most promising simple correction has a uniquely fixed shape, but its strength and direction are not physically returned.

### Claim 4

The programme is not a complete first-principles derivation of known physics. One full master rule, one self-selected ruler, the neutrino sector, the quark-trapping mechanism and the final real-world calculation chain remain unfinished.

## 10. Final assessment

VERSF has achieved something substantial and unusual. It has taken an audacious foundational idea and turned it into a connected, disciplined and falsifiable research programme. It contains exact theorems, complete working machines, multi-resolution calculations, a genuine conditional mass-and-mixing return, clear numerical failures, and proofs that several attractive shortcuts cannot supply the missing answers. Very few attempts to go beneath the Standard Model reach the point where they can be tested this broadly and fail this precisely.

The unfinished work is nevertheless real. The deepest rules have not yet selected one complete master rule, the exact state offered before each event, the copying and maintenance dynamics, one source-native ruler, the physical neutrino numbers, the mechanism that prevents the ingredients of atomic nuclei from appearing alone, and the full conversion to ordinary experimental quantities.

The correct conclusion is therefore neither “finished” nor “only suggestive.” A vast amount has been accomplished, and the programme has reached a level where its remaining claims can be stated as hard, decision-grade tests. The next stage is to calculate the missing mechanisms directly and allow the result - favourable or unfavourable - to decide the future of the theory.

### About this summary

This is the non-technical companion to “VERSF Standard Model Derivation Audit - August 2026.” Specialist paper titles, equations, source hashes, exact pass conditions and the sixteen-paper technical programme are left to the detailed companion document.