The equation that Steven Strogatz may have been referring to as the most accurate representation of reality is likely the quantum electrodynamics (QED) equation. QED is a relativistic quantum field theory that describes the interactions between charged particles and the electromagnetic field. The theory was developed by Richard Feynman, Julian Schwinger, and Shin'ichiro Tomonaga in the 1940s, and is considered to be one of the most successful and accurate physical theories in modern physics.

The QED equation is a mathematical expression that describes the probability amplitudes for different possible outcomes of quantum interactions between charged particles and the electromagnetic field. The equation involves the use of Feynman diagrams, which are graphical representations of the possible interactions between particles and fields.

The QED equation is a highly complex and mathematically sophisticated formula, and cannot be easily summarized in a few words or symbols. However, its accuracy has been extensively verified by experimental measurements, and it has been used to make predictions with remarkable precision in a wide range of phenomena, including the behavior of subatomic particles and the electromagnetic properties of atoms and molecules.

Can you show me the equation for QED

Yes, I can provide the basic equation for QED. The QED equation is a relativistic quantum field theory that describes the interaction between charged particles and the electromagnetic field. The basic equation of QED is the Feynman path integral formulation of quantum mechanics, which is given by:

Z = ∫D[A]D[ψ]D[ψ\*]exp(iS[A,ψ,ψ\*])

where Z is the partition function of the system, A is the electromagnetic potential, and ψ and ψ\* are the Dirac spinors that describe the behavior of the charged particles. The action S[A,ψ,ψ\*] is given by:

S[A,ψ,ψ\*] = ∫d^4x{(-1/4)FμνFμν + ψ\*(iγμDμ - m)ψ}

where Fμν is the electromagnetic field tensor, Dμ is the covariant derivative, γμ are the Dirac matrices, and m is the mass of the charged particles.

The path integral formulation of QED allows us to calculate the probability amplitudes for different possible outcomes of quantum interactions between charged particles and the electromagnetic field. However, the equation is highly complex and requires advanced mathematical and computational techniques to solve.