

Abstract Submitted  
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**11 Major Problems in Physics** DOUGLAS SWEETSER, None — A list of major problems in physics will be reviewed. The eleven issues are: weak gravity, old gravity, big gravity, small gravity, small physics, fast physics, small and fast physics, the 4 fundamental forces, unified physics, the arrow of space-time, and visualizing physics. In the 1940s, Schrödinger suggested that the key to genetics had to involve a boring, repetitive system. A new path to such a wide variety of problems in physics must be far more boring and repetitive. Tensors have been the accounting system of choice for all equations in physics. We may need a new accounting system for changes in space-time that has the properties we know exist in fundamental physics baked in as part of its structure. The quaternion group  $Q_8$  might provide the correct place to start. Tensors in 4D spacetime are done on a manifold with 4 independent real number lines (picture 4 lines with 4 zeroes). The group  $Q_8$  has a different topology, a star that shares the same zero. Working without the real number line is scary, but the long-running problems in physics may justify the shift in accounting systems.

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None

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