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Analytical Animations: New Views of Physics DOUG SWEETSER, none — Analytical animation, like analytic geometry before it, opens new ways to

none — Analytical animation, like analytic geometry before it, opens new ways to look at physics. Systems with both spin 1/2 and spin 1 symmetry can be animated. The groups U(1), SU(2), and SU(3) of the standard model are viewed as animations, and together make visual sense. A new perspective on gamma matrices, a tool used in quantum field theory, is easy to understand based on images. All software used is open source.

 $\begin{array}{c} \text{Doug Sweetser} \\ \text{none} \end{array}$

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