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Visualizing the Weyl Curvature Tensor: Frame-Drag Vortex Lines and Tidal Tendex Lines[1] KIP S. THORNE, YANBEI CHEN, JEFFREY D. KAPLAN, KEITH D. MATTHEWS, DAVID A. NICHOLS, MARK SCHEEL, FAN ZHANG, AARON ZIMMERMAN, Caltech, GEOFFREY LOVELACE, ROBERT OWEN, Cornell, JEANDREW BRINK, NITHEP — When one slices spacetime into space plus time, the Weyl curvature tensor gets split into two symmetric, trace-free tensors: its "electric" part, which describes tidal forces, and its "magnetic" part, which describes differential frame dragging. The electric part is completely characterized by *tidal tendex lines* (integral curves of its eigenvectors) and their *tendicities* (eigenvalues); and the magnetic part, by corresponding *frame-drag vortex lines* and their *vorticities*. We will discuss the physical meanings of these quantities and their use to visualize spacetime curvature, and we will illustrate them for stationary situations: a spinning body in linearized theory, and a Kerr black hole.

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