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Defining and calculating spin on deformed apparent horizons ROBERT OWEN, Oberlin College — Numerical relativity, apart from its significance to gravitational wave science, also provides a testing ground for studying the properties of spacetime in the highly dynamical, nonlinear regime. Many interesting aspects of black hole physics relate to spin angular momentum. Despite its intuitive power, angular momentum is a notoriously tricky concept to define in general relativity, and mathematical subtleties still cloud the interpretation of black hole spin in situations of most interest to numerical relativity. In this talk, I will describe a few such ambiguities, characterize the practical danger that they might pose, and explore a few options for mitigating them. Along the way, I will describe a measure of black hole extremality, derived from ideas of Booth and Fairhurst, that can help characterize the spin of arbitrarily deformed black holes.

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