

# Black Holes The Membrane Paradigm

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mechanics for the exterior physics of black holes, without using quantum-mechanical principles or calculations. It models a black hole as a thin, classically radiating surface at or vanishingly close to the black hole's event horizon. This approach to the theory of black holes was created by Kip S. Thorne, R. H. Price and D. A. Macdonald. *Membrane paradigm - Wikipedia* *Black Holes: The Membrane Paradigm.* This pedagogical introduction to the physics of black holes emphasizes the “membrane paradigm”, which translates the mathematics and physics of black holes into a form accessible to readers with little knowledge of general relativity but a solid grounding in nonrelativistic physics. *Black Holes: The Membrane Paradigm by Kip S. Thorne* must fall through the horizon into the hole. In the membrane paradigm the black hole is pictured in ordinary, three-dimensional space as a spheroidal membrane that has the same circumference as the horizon of curved spacetime. The spheroid is flattened because the hole is rotating. Photons (blue) can hover on the membrane, where they are. *The Membrane Paradigm for Black Holes - JSTOR* *The membrane paradigm for black holes was invented to understand some of these aspects and demystify the characteristics of the black hole and to describe the associated physics as one would for “ordinary bodies”. Claim: the internal dynamics of a black hole can be modeled effectively as a membrane with electromechanical properties.* *The black hole membrane paradigm redux* *Abstract.* The physics of black holes is explored in terms of a membrane paradigm which treats the event horizon as a two-dimensional membrane embedded in three-dimensional space. A 3+1 formalism is used to split Schwarzschild space-time and the laws of physics outside a nonrotating hole, which permits treatment of the atmosphere in terms of the physical properties of thin slices. *Black holes: The membrane paradigm - NASA/ADS* *This pedagogical introduction to the physics of black holes emphasizes the "membrane paradigm", which translates the mathematics and physics of black holes into a form accessible to readers with little knowledge of general relativity but a solid grounding in nonrelativistic physics. This is accomplished without resort to approximations or loss of content.* *Black Holes: The Membrane Paradigm - Google Books* *The membrane paradigm represents the four-dimensional spacetime of the black hole's "event horizon" as a two-dimensional membrane in three-dimensional space, allowing the reader to understand and compute the behavior of black holes in complex astrophysical environments.* *Black Holes: The Membrane Paradigm (The Silliman Memorial ...* *It was shown in arXiv:2006.16163 that the effective stationary membrane equations from the large  $\$D\$$  membrane paradigm at the first order admit black ring so...de Sitter Static Black Ring in Large  $\$D\$$  Membrane Paradigm ...* *Quantum Mechanics of Black Holes* *Black Hole Entropy and Hawking Radiation.* Now let us go back to the conflict between black holes

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