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Unmasking Black Holes with the Event Horizon Telescope

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Black holes are, without question, one of the most bizarre and mysterious phenomena predicted by Einstein's theory of general relativity. They correspond to infinitely dense, compact regions in space and time, where gravity is so extreme that nothing, not even light, can escape from within. And, their existence raises some of the most challenging questions about the nature of space and time. Over the past few decades, astronomers have identified numerous tantalizing observations that suggested that black holes are real. This past April, the search for confirmation changed dramatically with the publication of the first image ever taken of a black hole, rendering tangible what was previously only the purview of theory and science fiction. I will describe how these observations were made, how the images were generated, how quantitative measurements were obtained, and what they all mean for gravity and black hole astronomy.

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Session Classification: M-PLEN-2 Avery Broderick, Univ. of Waterloo / PI (DTP/PPD) (DPT/PPD)

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