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Supermassive Black Holes - Evidences of their existence¹ MOHAMED HASSAN, SUNY at Stony Brook, Stony Brook, NY — Supermassive black holes with masses up to billions of solar masses constitute a spectacular phenomenon in the universe. Their formation mechanisms are contravertial, the experimental detection is quite tedious, yet they might provide us with a scenario of guest galaxy creation. In my presentation, I will focus on observational astronomy techniques like gravitational microlensing and stars dynamics to probe the hidden black holes. There is an unexplained correlation between black hole masses and the dispersion velocity of the stars running on the edges of the accompanying galaxy. Several explanations will be discussed. During the last decade, the discovery of a supermassive black hole in the center of our own galaxy provided us with a near-by laboratory to study the phenomenon and opened the way to new era in the science of supermassive black holes.

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