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MEHRA - SCHWARZSCHILD BLACK HOLE

ANIL MAHESHWARI AND M. K. GOKHROO

Abstract

We analyze the globally regular solution of the Einstein field equations describing a black hole whose singularity is replaced by Mehra's solution taking it as a core or nucleus. It is named as Mehra - Schwarzschild black hole (MSBH). Different physical properties have been discussed viz. horizon, mass limits for its existence, Gibbons - Hawking temperature and energy outside the black hole etc. It is shown that if mass limit crosses the maximum possible mass i.e. M_{max}, then there will exist a necked singularity. It is also shown that for lower values of core radius, Gibbons - Hawking temperature is very high thus the black hole will evaporate.

Key Words : Black Hole, Mass, Singularity, Gibbons - Hawking Temperature.

Mathematics Subject Classification: 04. 20. Jb, 04. 10. Dy

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