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Transportation process in the gravitational collapse

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In this paper, we study the transport equation which provide the information about the transfer of mass, heat and momentum during the gravitational collapse of massive stars. We adopt the modified theories of gravity and examine the process of energy transport and its effects on the collapsing process. We discuss how such theories may incorporated mathematically into the analysis and control of the dynamics of a complex system. The transport equation governs the dissipative fluxes and their associated quantities like temperature, relaxation time and thermal conductivity. It helps to construct physically viable models of radiating stars. We also develop the dynamical equations and coupled with transport equation. We discuss how inertia of heat causes a decrease in the inertial and gravitational mass densities and hence effect the outcome of the gravitational collapse. We obtained three cases depending on a physical factor and on its positive and negative value. Positive value yields the gravitational collapse of massive stars whereas negative value yields the formation of white dwarf.

Biography

Hafiza Rizwana Kausar has completed her PhD in 2012 in Einstein's Theory of Relativity from University of the Punjab, Pakistan and postdoctoral studies from Department of Physics, University of Zurich, Switzerland. Her research articles have been published in regular journals of international repute having 50 plus impavt factor. She got research awards by Pakistan Council for Science and Technology in 2012 and 2015 of category F and B respectively. She has presented her work at various national and international conferences. Currently, she is working at the University of Central Punjab (UCP) Lahore as the Incharge Faculty of Sciences and Director of Centre for Applicable Mathematics and Statistics in the UCP Business School.

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