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The effects of a minimal length on the structure of black holes within the pseudo-complex General Relativity

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The effects of a minimal length, on the structure near the event horizon of a Schwarzschild black hole, are investigated within the pseudo-complex General (pcGR) Relativity. It is shown that for small mass black holes there are strong effects, e.g., avoiding the accumulation of mass which might be important in the formation of black holes during the Big Bang. The pcGR adds to the metric a contribution characterized by a parameter, which has a critical value at which barely an event horizon exists. For macroscopic black holes, these effects vanished for below and above this critical value, but at the critical value effects still persist though quickly disappearing. For very large mass black holes the minimal length can be safely neglected. The limit between a small and a macroscopic black hole, in units of length, is between 10^{15}cm and 10^{13}cm.

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