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Critical point and primary direct photons

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The critical point in particle physics at high temperature is studied through the ideal gas of scalars, the dilatons, in the model that implies the spontaneous breaking of an approximate scale symmetry. The dynamical system of identical particles weakly interacting to each other is considered. We found the critical temperature as a function of a dilaton mass, and the fluctuation of particle density grows up very sharply at critical point. Our results also suggest that the critical point may be identified through the fluctuation in yield of primary photons induced by conformal anomaly of strong and electromagnetic sectors.

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