

XXV International Baldin Seminar on High Energy Physics Problems
"Relativistic Nuclear Physics and Quantum Chromodynamics"



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Mixed confinement-deconfinement phases in rotating gluon plasma

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Using first-principle numerical lattice simulations, we demonstrate that the hot gluon plasma develops strong inhomogeneity with angular rotation. In certain conditions the existence of mixed confinement-deconfinement phase, when the periphery and central regions of rotating system are in the different phases, becomes possible. We study the spatial distribution of the Polyakov loop in the plane orthogonal to the rotational axis and find the conditions when the co-existing of two phases may be possible. We also calculate the local critical temperature for rotating gluon plasma and study its dependence on the angular velocity and radius of the system.

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