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Heat Transport and Enhancement Confinement Regimes in Tokamak as a Result of Plasma Selforganization

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Based on hypotheses about self-organization and pressure profile shape conservation in tokamak plasma, the turbulent heat transport processes are analyzed. The mechanism of internal transport barriers formation in regions without low number rational magnetic surfaces is suggested. The stronger pressure profile distortions from the self-consistent profile bring to the lower mode number excitation, increasing the heat flux. It is shown that the specific feature of the energy turbulent transport by low modes is the possibility of the internal transport barriers formation. The nontraditional explanation for H mode and regimes with the improved confinement ("advanced tokamak") is suggested.

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