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New vortices in two-flavor dense quark core of compact star

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Quark hadron continuity with two- flavor quarks connects hadronic matter with neutron 3P2 superfluidity and two-flavor dense quark matter. This two- flavor dense quark phase consists of the coexistence of the 2SC diquark condensate of ud - quarks and P –wave diquark condensate of d –quarks , which gives rise to color superconductivity as well as superfluidity. The stable vortices are non-Abelian Alice strings, which are superfluid vortices with fractional circulation and non-Abelian color magnetic fluxes therein. A single Abelian superfluid vortex is unstable against decay into three non-Abelian Alice strings. Three neutron vortices connect at the border with three non-Abelian Alice strings with different color magnetic fluxes forming boojum. 2SC condensate is a type II superconductor and magnetic field penetrates into quark core in the form of quark vortices.

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