Effects of the order parameter symmetry on the vortex core structure in the iron pnictides

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Effects of the order parameter symmetry on the cutoff parameter ξ_h (determining from the magnetic field distribution) in the mixed state are investigated in framework of quasiclassical Eilenberger theory for isotropic $s^{\pm}$ and for s_{++} pairing symmetries of superconductors using computational methods. In $s^{\pm}$ pairing symmetry the gap function has opposite sign and equal absolute values of the electron and hole pockets of the Fermi surface and in s_{++} pairing symmetry the gap function has the same sign of the electron and hole pockets of the Fermi surfaces. The $s^{\pm}$ pairing symmetry results in different effects of intraband (Γ_0) and interband (Γ_π) impurity scattering on ξ_h. It is found that ξ_h/ξ_{c2} decreases with the Γ_0 leading to values much less than those predicted by the analytical Ginzburg-Landau (AGL) theory for high Γ_0. At very high Γ_0 the interband scattering suppresses ξ_h/ξ_{c2} considerably less then the one in the whole field range making it flat. If Γ_0 and Γ_π are small and equal then the $\xi_h/\xi_{c2}(B/B_{c2})$ dependence behaves like that of the AGL model and shows a minimum with value much more than that obtained for s_{++} superconductors. With high Γ_π the dependence of $\xi_h/\xi_{c2}(B/B_{c2})$ resides above the AGL curve. Such behavior is quite different from that in s_{++} pairing symmetry where intraband and interband scattering rates act in a similar way and ξ_h/ξ_{c2} decreases monotonously with impurity scattering and resides below the AGL curve.