Coexistence of type II Dirac transport and anisotropic superconductivity in layered material PdTe$_2$ and improved possible topological superconductor FENGQI SONG, FUCONG FEI, Nanjing Univ — We demonstrate the coexistence of the type-II featured tilted Dirac cones and anisotropic superconductivity in a layered crystal PdTe$_2$ by the combined studies using the low-temperature transport, de Haas-van Alphen oscillations and the first-principles calculations. The superconductivity appears at 1.9K and the upper critical field when $I_{xc}$ is 3 times larger than that when $I_c$. Six conductive pockets are identified in the dHvA measurements, where one mode with frequency of 8.0T exhibits the nontrivial Berry phase. Detailed band structure of PdTe$_2$ was analyzed by theory calculation which is consistent with the dHvA measurements and feature of the type-II Dirac fermions was confirmed. We consider type II Dirac semimetals are the optimized materials with topological superconductivity transport and PdTe$_2$ is an improved platform to produce the possible topological superconductor.