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One-dimensional Ultracold Fermi Gases with Spin-orbit Coupling YINGFEI GU, HUI ZHAI, Institute for Advanced Study, Tsinghua Univ., Beijing 100084 — We study one-dimensional ultracold Fermi gases with spin-orbit coupling. We use the Bogoliubov-de Gennes equations to determine pairing order parameter, and find out new phases in addition to fully polarized normal phase, fully paired BCS phase and the FFLO phase. We complete the phase diagram in terms of polarization, interaction parameter and strength of spin-orbit coupling.

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