National Science Foundation Graduate Research Fellowship Program: Three years of support for graduate students in STEM fields. Annual deadline near the end of October. See:

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201

Department of Defense (DOD) SMART: Scholarships for undergraduates and graduates in STEM fields. Must be U.S. citizen, B average or better, 18 years old or older, able to participate in a DOD summer internship, and willing to accept post-graduate employment with DOD. Annual deadline in December. See:

https://smart.asee.org/

Department of Defense (DOD) National Defense Science and Engineering Fellowship: Three year graduate Fellowship in one of 15 STEM fields, including physics. Must be U.S. citizen pursuing graduate degree at U.S. institution. Annual deadline in December. See:

https://ndseg.asee.org/

Department of Energy (DOE) Stewardship Science Graduate Fellowship: Up to four years of support in certain STEM areas related to Stewardship Science. Must be U.S. citizen or permanent resident, advanced undergraduate or graduate student in first two years at U.S. institution. Annual deadline in January. See:

https://www.krellinst.org/ssgf/
Department of Energy (DOE) Computational Science Graduate Fellowship: Up to four years of support in computational science areas including physics and astronomy. Must be U.S. citizen or permanent resident, undergraduate senior or first year graduate student at a U.S. institution. Annual deadline in January. See:

https://www.krellinst.org/csgf/

DOE Office of Science Graduate Research Program:

Provides supplemental awards to support graduate student thesis research at DOE laboratories. Must be U.S. citizen or permanent resident alien at least 18 years old, full time student in a U.S. institution with a defined graduate thesis project and advisor. Next deadline May 11, 2016, with the following solicitation deadline November 2016. See:

http://science.energy.gov/wdts/scgsr/