Anisotropic behavior of superconductivity in FeSe$_{0.5}$Te$_{0.5}$ thin films. TONG WANG, Nanjing University of Aeronautics and Astronautics, ZHONGWEN XING, Nanjing University — The resistive properties under angle-dependent magnetic fields up to 16 Tesla are investigated in superconducting FeTe$_{0.5}$Se$_{0.5}$ (FST) thin films grown on SrTiO$_3$ (STO) substrates without or with a buffered CeO$_2$ film. It is found that the FST/CeO$_2$/STO films have an enhanced superconducting transition temperature and an induced superconducting anisotropy in comparison with the FST/STO films. These different behaviors in the absence and presence of the buffered CeO$_2$ film are attributed to the change of the out-of-plane lattice constant, rather than the change of Se/Te heights within the tetrahedron.