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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.

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