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Time- and angle-resolved photoemission studies of ZrTe₅ CHANG-MIN LEE, FAHAD MAHMOOD, TAKEHITO SUZUKI, JOSEPH CHECKELSKY, NUH GEDIK, MIT — With a surge of interest in various topological states of matter, ZrTe₅ has been recently reinvestigated due to its unique electronic and optical properties. While there is still an ongoing debate about whether ZrTe₅ is a strong/weak topological insulator or a Dirac semimetal, time-resolved studies and information about the conduction band have been lacking. Here, we report time- and angle-resolved photoemission measurements performed on single crystals of ZrTe₅ with various pump laser pulses with energies ranging from near- to mid-infrared. Our results reveal relaxation dynamics across different energies and set a limit on the topological classification of ZrTe₅.

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