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Chasing eddies and their wall signature in turbulent boundary layers at Mach 3 through 10[1] STEPHAN PRIEBE, IZAAK BEEKMAN, M. PINO MARTIN, Princeton University — We use a direct numerical simulation database of turbulent boundary layers,[2,3,4] statistical tools,[5] scientifically-rooted packet-pattern recognition,[6] and validated visualization algorithms[7] to identify hairpin packets and their wall signature. We investigate the variation of time scales and length scales associated with coherent structures and the role of hairpin packets on the generation of skin friction, wall-pressure loading and heat transfer.

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