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**Classification of critical points in a turbulent boundary layer** MAX GIBSON, Portland State University (PSU), ANDERS HELGELAND, Norwegian Defence Research Establishment (FFI), MURAT TUTKUN, FFI, RAÚL BAYOÁN CAL, PSU — Critical points of the velocity field generated by the direct numerical simulation of turbulent channel flow<sup>1</sup> are studied using the methodology described by Aasen and Furuheim (2008)<sup>2</sup>. First order critical points inside the field are obtained using a trilinear interpolation scheme. Classification of the critical points found in the three dimensional field is performed by studying individual phase planes of each critical point. Distribution of the critical points and their classifications are compared for different parts of the converging-diverging turbulent channel flow in order to investigate the effect of imposed pressure gradient within the domain. The results obtained from the numerical simulation with  $Re_\theta = 395$  are compared with three-component two-dimensional stereo PIV data recorded over the decelerating part of a converging-diverging bump placed inside the wind tunnel possessing a significantly higher Reynolds number of 19100.

<sup>1</sup>M. Marquillie et al. (2008), J. Turbulence, vol 9, no 1, pp. 1-23.

<sup>2</sup>M. Aasen and K. Furuheim (2008), M.Sc. thesis, Department of Informatics, University of Oslo, Oslo, Norway.

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