1084-26-147 **Krzysztof Chris Ciesielski*** (kcies@math.whu.edu), Department of Mathematics, West Virginia University, Morgantown, WV 26506-6310. *On functions on $\mathbb{R}^n$ continuous when restricted to nice curves or surfaces.*

A function from $\mathbb{R}^n$ into $\mathbb{R}$ is separately continuous, when its restriction to any line parallel to a coordinate axis is continuous. In this talk we will discuss the following generalizations of this notion—the classes of functions $f\colon \mathbb{R}^n \to \mathbb{R}$ with continuous restrictions to: (1) any line (i.e., linearly continuous functions), (2) any proper hyperplane (hyperplane continuous functions), and (3) any isometric copy of a graph of a k-times differentiable function (D^k-continuous functions). In particular, we will report a progress on a problem of characterization of the set of points of discontinuity of linearly continuous functions. We present an elementary example of discontinuous hyperplane continuous function on $\mathbb{R}^n$ for arbitrary n. We also describe an example of D^2-continuous function on $\mathbb{R}^2$ with the set of points of discontinuity having a positive one-dimensional Hausdorff measure. (Received August 29, 2012)