1047-46-410   **Piotr Hajlasz*** (`hajlasz@pitt.edu`), University of Pittsburgh, Department of Mathematics, 301 Thackeray Hall, Pittsburgh, PA 15260, and **Jan Maly**. *On approximate differentiability of the maximal function.* Preliminary report.

Kinnunen proved that the maximal function is a bounded operator in $W^{1,p}(R^n)$ when $p > 1$. Tanaka showed that the noncentered maximal function in dimension 1 of a function in $W^{1,1}$ belongs locally to $W^{1,1}$ and has integrable derivative. The question whether Tanaka's result holds for the centered maximal function and if it can be generalized to higher dimensions remains open. In the talk we will discuss a weaker result: the a.e. approximate differentiability of Mu, where $u \in W^{1,1}(R^n)$ and also differentiability properties of Mu, where $u \in L^1(R^n)$. (Received February 02, 2009)