Real Analysis Exchange
Vol. 20(2), 1994/5, pp. 396–400

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ON STRONG QUASI-CONTINUITY

1 NOTATIONS:

$\mathcal{R}$ - the set of all reals;

N - the set of all positive integers;

μ_e (μ) - the outer Lebesgue measure (the Lebesgue measure) in $\mathcal{R}$;

$d_u(A,x) = \limsup_{h\to 0} \frac{mu_e(A\cap(x-h,x+h))}{2h}$ - the upper density of A at x;

$d_l(A,x) = \liminf_{h\to 0} \frac{\mu_e(A\cap(x-h,x+h))}{2h}$ - the lower density of A at x;

$x \in \mathcal{R}$ is called a density point of a set A if there exists a measurable (in the sense of Lebesgue) set $B \subset A$ such that $d_l(B,x) = 1$;

$\mathcal{T}_d = \{A \subset \mathcal{R}; A$ is measurable and every point $x \in A$ is a density point of $A\}$ denotes the density topology;

$int(A)$ ($int_d(A)$) - the Euclidean interior (the interior in $\mathcal{T}_d$) of A;

$cl(A)$ - the closure of A;

$\mathcal{T}_{ae} = \{A \in \mathcal{T}_d; \mu(A - int(A)) = 0\}$.

2 DEFINITIONS:

A function $f : \mathcal{R} \longrightarrow \mathcal{R}$ is called quasi-continuous (in short q.c.) [cliquish (in short c.q.)] at a point x if for every open set U containing x and for every positive real η there is a nonempty open set $V \subset U$ such that $|f(t) - f(x)| < \eta$ for all points $t \in V$ [$osc_V f < \eta$].;

*Supported by KBN Research Grant 1992-94, 2 1144 91 01.