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ANNOUNCEMENT OF NEW RESULTS

EXTENSIONS OF MAPPINGS FROM PRODUCTS

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In the following results, $\{X_i\}$ is a family of metric spaces, X is a subset of $\prod X_i$ such that \bar{X} is regularly closed.

Proposition. For every locally finite cover \mathcal{U} of X composed of sets regularly open in X there exists a σ -discrete (in $\prod X_i$) locally finite (in the G_σ -closure of $X \cup (\prod X_i - \bar{X})$) collection \mathcal{V} composed of basic open sets in $\prod X_i$ such that the trace of \mathcal{V} on X refines \mathcal{U} .

Corollaries: 1. The fine uniformity of X is the restriction of the fine uniformity of the G_σ -closure of $X \cup (\prod X_i - \bar{X})$.

2 (Štěpín). Every regularly closed subset of $\prod X_i$ is a zero set.

3. Every continuous mapping on X into a Banach space (normed space if \bar{X} is closed) can be continuously extended onto the G_σ -closure of $X \cup (\prod X_i - \bar{X})$, in particular, onto $\prod X_i$ if $\bar{X} - X$ contains no nonvoid G_σ -subset of $\prod X_i$.

4. Every continuous mapping on X into a topologically complete space (e.g. into a paracompact or realcompact space) can be continuously extended onto the G_σ -closure of X .

5 (Pelant). Locally fine spaces are subfine.

The above results can be applied e.g. when X contains a Σ -product of $\{X_i\}$ or is regularly closed, or as the description of the fine uniformity on $\prod X_i$.

In the case that $\text{pr}_J X = \prod_J X_i$ for all countable J , we can prove an analogy of the Proposition also for paracompact p -spaces X_i .

