1084-06-271 **Michael Bukatin*** (bukatin@cs.brandeis.edu), **Ralph Kopperman** (rdkcc@ccny.cuny.edu) and **Steve Matthews** (steve.matthews@warwick.ac.uk). *Enrichment in Quantaloids: a Typed Enrichment for Categorical Description of Heterogenous Spaces.*

Typed enrichment is a situation where an arrow between objects X and Y is selected from a category determined by $(Type(X), Type(Y))$.

The enrichment in quantaloids is a version of enrichment in bicategories greatly simplified conceptually and technically by the restrictive requirement that the categories corresponding to $(Type(X), Type(Y))$ be complete lattices.

There has been a lot of interest in quantaloid enrichment in recent years. In particular, it was used to produce categorification of spaces of partially defined elements, such as lattice-valued sets and partial metric spaces.

This categorification sheds additional light on the meaning of the strong triangularity axiom of partial metrics, $P(X,Z) \leq P(X,Y) + P(Y,Z) - P(Y,Y)$. The typed composition, $P(X,Y) \circ_Y P(Y,Z) = P(X,Y) + P(Y,Z) - P(Y,Y)$, is defined in such a fashion that self-distances of partially defined points, $P(Y,Y)$, are units with respect to the composition $P(X,Y) \circ_Y P(Y,Z)$, despite those self-distances generally being non-zero. (Received September 03, 2012)