

1068-54-45

**Hatim Boustique\*** (hboustique@valenciacc.edu), Department of Mathematics, Orlando, FL 32816, and **Gary D Richardson** (garyr@mail.ucf.edu), Department of Mathematics, Orlando, FL 32816. *Lattice-Valued Cauchy Spaces*. Preliminary report.

A category of lattice-valued Cauchy spaces is defined, and its properties are investigated. The relationship between this category and the recent work by G. Jäger is presented. The notion of regularity is also studied. In particular, the category consisting of the regular Cauchy spaces is shown to be bireflective in the category of all lattice-valued Cauchy spaces having Cauchy-continuous maps as its morphisms. Moreover, completions of lattice-valued Cauchy spaces are studied. (Received January 06, 2011)