

# CATEGORIES AND FUNDAMENTAL INVERSE SEMIGROUPS

A Thesis

Submitted in Partial Fulfillment of the Requirements for the Degree of  
Masters of Philosophy in Mathematics

of

The University of the West Indies

by

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2011

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## ABSTRACT

### Categories and Fundamental Inverse Semigroups

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In this thesis we study an association between representational categories and inverse semigroups. Inverse semigroups form a structure in Abstract Algebra which is used to describe partial symmetries of mathematical objects. The purpose of the research was to identify a categorical counterpart of the notion of fundamentalness in semigroup theory. This was done by investigating the action of the endofunctor  $M$ , on the category of representations of an inverse semigroup. The result obtained is that the endofunctor is faithful when the inverse semigroup is fundamental.

**Keywords :** inverse semigroup, category, monad, functor, faithful, fundamental inverse semigroup