International J. of Math. Sci. & Engg. Appls. (IJMSEA)
ISSN 0973-9424, Vol. 4 No. I (March, 2010), pp. 383-396

# IDENTITIES IN (X(Y Z))Z WITH LOOP GRAPH VARIETIES OF TYPE (2, 0)

**AMPORN ANANTPINITWATNA AND TIANG POOMSA-ARD**

**Abstract**

Graph algebras establish a connection between directed graphs without multiple edges and special universal algebras of type (2, 0). We say that a graph G satisfies a term equation $s \approx t$ if the corresponding graph algebra A(G) satisfies $s \approx t$. A class of graph algebras V is called a graph variety if $V = Modg\sum'$ where $\sum'$ is a subset of $T(X)\times T(X)$. A graph variety $V' = Modg\sum'$ is called an (x(yz))z with loop graph variety if $\sum$ is a set of (x(yz))z with loop term equations. In this paper we characterize identities in each (x(yz))z with loop graph varieties. For identities, varieties and other basic concept of universal algebra see e.g. [3].

---

Keywords : Varieties, Binary algebra, Graph algebras, Term, (x(yz))z with loop graph varieties, Identities in (x(yz))z with loop graph varieties

2000 Mathematics Subject Classification: 05B25, 08B15