

## THE CLASSES OF BIREGULAR LEFTMOST GRAPH VARIETIES OF TYPE (2,0)

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### 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 graphs  $\mathcal{V}$  is called a graph variety if  $\mathcal{V} = \text{Mod}_g \overline{\Sigma}$  where  $\Sigma$  is a subset of  $T(X) \times T(X)$ . A graph variety  $\mathcal{V}' = \text{Mod}_g \Sigma'$  is called a biregular leftmost graph variety if  $\Sigma'$  is a set of biregular leftmost term equations. A term equation  $s \approx t$  is called an identity in a graph variety  $\mathcal{V}$  if  $A(G)$  satisfies  $s \approx t$  for all  $G \in \mathcal{V}$ . An identity  $s \approx t$  of a graph variety  $\mathcal{V}$  is belong to the class  $\mathcal{V}$  whenever  $\text{Mod}_g \{s \approx t\} = \mathcal{V}$ .

In this paper we characterize the class of each biregular leftmost graph variety.

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Key Words : *Varieties, Biregular leftmost graph varieties, Term, Identities, Class of graph variety, Binary algebra, Graph algebras.*

2000 Mathematics Subject Classification : 05C25, 08B15