

## MONOMIAL IDEALS OF GRAPHS WITH LOOPS

BY

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**Abstract.** We investigate, using the notion of linear quotients, significative classes of connected graphs whose monomial edge ideals, not necessarily squarefree, have linear resolution, in order to compute standard algebraic invariants of the polynomial ring related to these graphs modulo such ideals. Moreover we are able to determine the structure of the ideals of vertex covers for the edge ideals associated to the previous classes of graphs which can have loops on any vertex. Lastly, it is shown that these ideals are of linear type.

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**Key words:** graphs with loops, linear quotients, ideals of vertex covers, ideals of linear type.