

**RICCATI TYPE EQUATIONS IN  
LEIBNIZ ALGEBRAS WITH LOGARITHMS**

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*Dedicated to Professor Gary F. Roach  
on the occasion of his 70th birthday,  
always a good friend*

**Abstract**

There are applied power mappings in algebras with logarithms induced by a given linear operator  $D$  in order to study Riccati type equations  $Dx = ax^2 + bx + c$ ,  $a, b, c \in X$ . The main results of this paper concern with the case when an algebra under consideration is commutative and has a unit and the operator  $D$  satisfies the Leibniz condition, i.e.  $D(xy) = xDy + yDx$  for  $x, y \in \text{dom } D$ .

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*Key Words and Phrases:* algebra with unit, Leibniz condition, logarithmic mapping, antilogarithmic mapping, power function, Riccati equation, Bernoulli equation