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Jason P Huffman* (jhuffman@jsucc.jsu.edu), Dept. MCIS, Jacksonville State University, Jacksonville, AL 36265, and **Henry E Heatherly**, Department of Mathematics, University of Louisiana, Lafayette, PO Box 41010, Lafayette, LA 70504. *An operational calculus for operator-valued equations.*

This paper develops an operational calculus to deal with certain integral, differential, and integro-differential equations with bounded linear operator coefficients. This operational calculus is an extension of both Mikusiński's operational calculus and the calculus developed previously by the authors. The methods here are used to obtain existence and uniqueness theorems for a class of Volterra integral equations and a class of Volterra integro-differential equations, each with bounded linear operator coefficients. The proofs given here use the recently obtained theorem that the Mikusiński convolution algebra \mathfrak{M} is a Jacobson radical algebra. This results in proofs of the desired existence and uniqueness which are almost entirely algebraic, the analysis elements having been primarily tucked away in the proof about \mathfrak{M} being a Jacobson radical algebra. (Received September 29, 2000)