

Abstract In this paper, we consider the differential–operator equation $du(t)/dt + Au(t) = 0$, with A a self–adjoint unbounded operator coefficient, which does not have a fixed sign. In this work, we will use a modified quasi–boundary value method; we obtain an approximate non–local problem depending on a small parameter $\varepsilon \in [0, 1]$. (C) 2013 Else