1022-32-50   **Andrew Raich*** (`andrew.raich@math.wisc.edu`), Department of Mathematics, Texas A&M University, Mailstop 3368, College Station, TX 77845-3368. *Pointwise Estimates for Heat Kernels in $\mathbb{R} \times \mathbb{C} \times \mathbb{C}$.*

I discuss the relationship between the weighted $\bar{\partial}$-problem in $\mathbb{C}$ and problems in several complex variables. I investigate a particular class of heat equations in $\mathbb{C}$ which have applications to the $\bar{\partial}_b$-problem on (the boundaries of) a class of unbounded weakly pseudoconvex domains called polynomial model domains. I present pointwise estimates on the relative fundamental solution of the heat equation in $\mathbb{C}$ and discuss ways to recover estimates for the relative fundamental solution of $\square_b$ on polynomial models. (Received September 06, 2006)