

ESTIMATES OF HEAT KERNELS IN $\mathbb{R} \times \mathbb{C}$.

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ABSTRACT. We study a class of heat equations on $\mathbb{R} \times \mathbb{C}$ motivated by the $\bar{\partial}$ -problem on weighted L^2 -spaces in \mathbb{C} and the (related) $\bar{\partial}_b$ -problem on a class of weakly pseudoconvex domains of finite type in \mathbb{C}^2 . We show that the solution of the heat equation is given by an integral operator against a heat kernel and try to understand the regularity and pointwise bounds of the kernel. We also discuss applications of the result.