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**Title:** Pointwise estimates on kernels of a family of heat equations in  $\mathbb{R} \times \mathbb{C}$  with applications to several complex variables.

**Abstract:** I discuss a number of problems in several complex variables whose analysis reduces to understanding a particular one-parameter family  $\square_\tau$  of differential operators in  $\mathbb{C}$ . I solve  $\square_\tau$  via its heat equation and discuss a method to obtain pointwise estimates on the integral kernel of the solving operator.