1099-51-312 **Fabrice Baudoin** and **Jing Wang*** (wang321@purdue.edu), 150 N. University St., West Lafayette, IN 47907-2067. *The subelliptic heat kernel on sub Riemannian model spaces.*

We work on model spaces of sub Riemannian manifolds: the Cauchy-Riemann sphere $\mathbb{S}^{2n+1}$, the CR complex hyperbolic space $\mathbb{H}^{2n+1}$ and the Quaternionic sphere $\mathbb{S}^{4n+3}$. On each space there is a canonical diffusion operator L: The sub-Laplacian, which is not elliptic but only subelliptic.

The symmetries of these model spaces enable us to obtain an explicit and geometrically meaningful formula for each associated heat kernel. From them we can deduce the small-time behaviors of the heat kernels on the diagonal, on the vertical cut-locus, and outside of the cut-locus.

The key point is to work in cylindrical coordinates that reflect the symmetries coming from the Hopf fibration of these model spaces. (Received February 10, 2014)