

**Meeting:** 1003, Atlanta, Georgia, SS 25A, AMS Special Session on Complex and Functional Analysis, I

1003-32-893      **Gautam Bharali\*** (bharali@umich.edu), Department of Mathematics, 525 East University Ave., Ann Arbor, MI 48109. *Surfaces that are locally polynomially convex at degenerate CR singularities.* Preliminary report.

Let  $S$  be a smooth real surface in  $\mathbb{C}^2$  and let  $p \in S$  be a point at which  $S$  has a complex tangent. We call such a point a degenerate CR singularity. One can choose local holomorphic coordinates with respect to which  $p = (0, 0)$  and  $S$  is locally the graph of a function  $F$  that vanishes to order  $\geq 2$  at 0. If  $p$  is an isolated CR singularity and the function  $F$  vanishes to order 2, then  $S$  is locally polynomially convex at  $p$  precisely when  $p$  is hyperbolic. No neat characterization is known when  $F$  vanishes to order  $\geq 3$ . We will present some sufficient conditions for  $S$  to be locally polynomially convex at  $p$  when  $p$  is an isolated CR singularity and  $F$  vanishes to order  $\geq 3$ . Furthermore, we will discuss strategies for a systematic quest for a characterization of local polynomial convexity in the present setting. (Received September 30, 2004)