1070-32-252 **Sushil Gorai*** (sushil@math.iisc.ernet.in), Department of Mathematics, Indian Institute of Science, Bangalore, Karnataka 560012, India. *Polynomial convexity of the union of more than two totally-real planes in* $\mathbb{C}^2$. Preliminary report.

In this talk, we shall discuss local polynomial convexity at the origin of the union of finitely many totally-real planes through $0 \in \mathbb{C}^2$. The planes, say $P_0, \ldots, P_N$, satisfy a mild transversality condition that enables us to present them in a normal form introduced by Weinstock. In this form, we have $P_0 = \mathbb{R}^2$ and $P_j = M(A_j) := (A + iI)\mathbb{R}^2,\ j = 1, \ldots, N$, where each A_j is a 2×2 matrix with real entries. Weinstock characterized polynomial convexity for $N = 1$. We shall demonstrate, using a characterization of simultaneous triangularizability of 2×2 matrices over the reals given by Florentino, a sufficient condition for local polynomial convexity at $0 \in \mathbb{C}^2$ of the union of the above planes. A lot more can be said when $N = 2$, even when the condition inspired by Florentino, which is a *closed* condition, does not hold. For three planes, we can study any generic (in an appropriate sense) triple, and we provide an *open* condition for local polynomial convexity. (Received February 14, 2011)