1093-32-357   **Peter Ebenfelt*** (`pebenfelt@ucsd.edu`), Department of Mathematics, La Jolla, CA 92093.
Partial rigidity of degenerate CR embeddings into spheres.

We consider degenerate CR maps f of a strictly pseudoconvex hypersurface $M \subset \mathbb{C}^{n+1}$ into a sphere S in a higher dimensional complex space. The degeneracy of the mapping f will be characterized in terms of the ranks of the CR second fundamental form and its covariant derivatives. In 2004, the speaker, together with Huang and Zaitsev, established a rigidity result for CR embeddings f into spheres in low codimensions. A key step in the proof of this result was to show that degenerate maps are necessarily contained in a complex plane section of the target sphere (partial rigidity). In the 2004 paper, it was shown that if the total rank d of the second fundamental form and all of its covariant derivatives is $< n$ (n is the CR dimension of M), then $f(M)$ is contained in a complex plane of dimension $n + d + 1$. When the total rank d exceeds n, it is no longer true, in general, that $f(M)$ is contained in a complex plane of dimension $n + d + 1$. In this talk, we shall show that when the ranks of the second fundamental form and its covariant derivatives exceed n, then partial rigidity may still persist, but there is a "defect" k that arises from the ranks exceeding n such that $f(M)$ is only contained in a complex plane of dimension $n + d + k + 1$. (Received August 20, 2013)