

# CR DISTRIBUTIONS AND ENVELOPES OF HOLOMORPHY

EGMONT PORTEN

In our talk, we will discuss two different problems, which can be treated with related methods. The point of departure is the long-standing problem to find a local geometric characterization of the embedded CR manifolds  $M$  such that CR functions holomorphically extend to full neighborhoods in ambient space. In contrast, to the closely related question about extension to open wedges, this problem is still open, even for real-analytic hypersurfaces in  $\mathbb{C}^2$ . We will present an analytic characterization, which leads to a complete understanding for certain families of homogeneous CR manifolds. In the second part, we will turn to global extension problems for unbounded domains  $D$  in Stein manifolds. Our main result relates the question whether a Hartogs theorem holds to properties geometric properties of the outside of  $D$ . In both questions, a crucial step will be to construct CR distributions on  $M$  or the boundary of  $D$  that incorporate obstructions to extension. The first part concerns joint work with Mauro Nacinovich, and the second part with Al Boggess and Roman Dwilewicz (†).