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Dual Hardy spaces on dual hypersurfaces in $\mathbb{CP}^n$

If γ is a simple closed smooth curve in the complex plane $\mathbb{C}$ then it is not hard to show that the norm (on L^2) of the associated (inner or outer) Cauchy transform for γ is equal to the reciprocal of

$$\inf_{f \in H_+, ||f||=1} \sup_{g \in H_-, ||h||=1} \left| \int_\gamma fg\, dz \right|$$

where H_+ and H_- are the inner and outer Hardy spaces associated to γ (with $p = 2$); thus the norm of the Cauchy transform measures the efficiency of the pairing between H_+ and H_-. Projective geometry plays a role in this result in that everything in sight transforms well under linear fractional transformations.

This talk will show how the "dual complement" construction in higher-dimensional complex projective space $\mathbb{CP}^n$ allows this result to be generalized to the case of (certain) higher-dimensional real hypersurfaces.