VIRTUAL EAST-WEST SCV SEMINAR

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EXISTENCE OF SOLUTIONS FOR $\overline{\partial}$ EQUATION
IN SOBOLEV SPACES OF NEGATIVE INDEX

Let Ω be a strictly pseudoconvex domain in $\mathbb{C}^n$ with C^{k+2} boundary, $k \geq 1$. We construct a $\overline{\partial}$ solution operator (depending on k) that gains $\frac{1}{2}$ derivative in the Sobolev space $H^{s,p}(\Omega)$ for any $1 < p < \infty$ and $s > \frac{1}{p} - k$. If the domain is C^∞, then there exists a $\overline{\partial}$ solution operator that gains $\frac{1}{2}$ derivative in $H^{s,p}(\Omega)$ for all $s \in \mathbb{R}$. We obtain our solution operators through the method of homotopy formula. The new ideas include a technique which we call "reverse integration by parts" and the construction of "anti-derivative operators" on distributions defined on bounded Lipschitz domains. This is joint work with Liding Yao.