Boundary expansions for geometric PDEs

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Abstract

In some geometric problems, we need to discuss the asymptotic expansions of solutions near boundary and estimate the remainders. The list of such problems includes the singular Yamabe problem, the regularity of minimal surface near the asymptotic infinity in the hyperbolic space and the complete Kahler-Einstein metrics in strictly pseudo-convex domains. Usually, the underlying equations become degenerate along boundary. In this talk, we present a PDE approach for remainder estimates, which are referred to as the polyhomogeneity, and for the global regularity up to boundary.