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Abstracts of Short Communications and Posters

Section:

10. Partial Differential Equations

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On partial differential equations in the unit ball of $\mathbb{C}^n$, which are singular at the origin and on the boundary

We are considering two kind of equations in the unit ball B of $\mathbb{C}^n$. First are second order equations

$$(\mathcal{R}\overline{\mathcal{R}} - |\lambda|^2)u = 0$$

where

$$\mathcal{R}\overline{\mathcal{R}}u := \sum_{i,j=1}^{n} z_i \overline{z}_j \frac{\partial^2 u}{\partial z_i \overline{z}_j}$$

and related first order equations

$$\overline{\mathcal{R}}\omega - \lambda\overline{\omega} = 0 \ ,$$

where $\mathcal{R}$ is the radial operator and

$$\overline{\mathcal{R}} :\equiv \sum_{i=1}^{n} \overline{z}_i \frac{\partial}{\partial \overline{z}_i} \ .$$

Second kind of equations are the multidimensional overdetermined elliptic Beltrami systems, degenerated at the boundary of B.