ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

10. Partial Differential Equations

1991 MS Classification: 32C38, 35A10, 35A27, 35B60
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Higher-codimensional boundary value problems for D-modules
The domains of the definition of holomorphic functions of several variables sometimes extend across higher-codimensional submanifolds. These phenomina are called the Hartogs' theorem and the Bochner's tube theorem. Since holomorphic functions are the solutions to the Cauchy-Riemann system, it is a very natural problem to generalize these results to the solutions of general systems, that is, of D-modules. For this purpose, we will construct the formulation of higher-codimensional boundary value problems by introducing new functors. As applications, we will give several extensions of the facts mentioned above to some classes of D-modules. The cases of hyperfunction solutions, of real analytic solutions, and of distribution solutions will be treated.