

Centro de Investigação em Matemática e Aplicações Departamento de Matemática

Seminário

14 de Dezembro de 2010, Terça-feira CLAV – Anf. 4 - 11:00 horas

Interior Estimates and Fine Regularity of Solutions to Linear Partial Differential Equations and Systems

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Resumo

We study local Morrey and Hölder regularity of solutions to linear parabolic partial differential equations. Using the freezing of the coefficients we are able to obtain an explicit formula for the solution and its higher order derivatives as a sum of potentials with Gauss kernel. Since the higher order derivatives of that kernel are exactly of Calderön-Zygmund type we can apply the previously obtained results to obtain interior a priori estimates for the solution. Further the inclusions between Morrey and Hölder spaces permits to study the regularity of these solutions. The approach applies without essential modifications also to systems which are parabolic in sense of Petrovskii.