universität wien

Ausgewählte Kapitel aus Partielle Differentialgleichungen:

Freie Randwertprobleme II*

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Sommersemester 2007

250310 VO

Studienprogrammleitung: Mathematik, **3** Std **6** ECTS-Punkte

When & Where:

Tuesday 11:00-13:00 A1.01 UZA4
Friday 11:00-12:00 D1.01 UZA4

Content:

Based on the famous Fermi lectures read by L.Caffrelli at the Scuola Normale de Pisa in 1998.

Methods:

Basic functional analysis, function spaces, boundary value problems, second order elliptic pde-s, Harnack inequality, derivative estimates, basic variational inequalities, comparison and maximum principles.

Goals:

On the example of Obstacle problem we will learn some advanced PDE methods and innovative techniques that are also applicable to a vast range of elliptic equations

Iceberg - the Stefan boundary hits the fixed water surface.

The shape of the iceberg developed by the melting process is governed by the distribution of temperature within the water and by the law of conservation of energy along the boundary. The shape is not known in advance, and its surface is a classical example of a free boundary formed by nature.
Solidification processes occur often in industry, such as in the production of steel and in growing crystal for semiconductors. A deep understanding of how to control these processes is greatly required.

* Designed to be independent from the first part!