

MATH COLLOQUIUM

Computed tomography and inversion formulas with incomplete measurements

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Time : 14:00

Place : TB 250, Boğaziçi Üniversitesi

Abstract: In Computed Tomography, as well as other imaging applications, the goal is to reconstruct a function in two or three dimensions from knowledge of its line integrals, also known as the ray-transform of the function or Radon Transform in the two dimensional case. In this talk we will present how the ray-transform appears as a model for the measurements in Computed Tomography. We will describe the mathematical setting in which this object is studied and quickly overview the main classic results, including inversion formulas. We will analyze in detail the non-locality characteristic of the classic formulas and present a different approach, which allows to obtain inversion formulas for cases of incomplete measurements. We will finish by studying how this approach can be exploited to obtain new results in particular cases of practical interest.

Tea and coffee will be served at 15:00