



Differential Equations and Applied Math Seminar

Dr. Ray Treinen, Texas State University

11am-12pm October 23rd, 2020

Zoom

Title: Theory and applications of representing certain functionals with integrals, part III

Abstract: We will continue to discuss results from a paper by Buttazzo and Dal Maso. We are working towards integral representation of certain functionals defined on Sobolev spaces, and in this week's seminar we will prove the following:

Theorem. *For every functional $F : C^1 \times \mathcal{B} \rightarrow \mathbb{R}$ the following conditions are equivalent:*

1. *there exists an integrand $f \in Car_\infty$ such that*

$$F(u, B) = \int_B f(x, u(x), Du(x)) dx,$$

for every $u \in C^1$ and every $B \in \mathcal{B}$,

2. *F is a measure, is ∞ -bounded, and satisfies the strong condition (ω) .*

This talk is one in a sequence of talks that are intended to cover three related papers. My hope is to make these talks as accessible as possible to graduate students that have had some graduate-level analysis.

Interested faculty and graduate students are encouraged to attend.