

***PDE, COMPLEX ANALYSIS AND
DIFFERENTIAL GEOMETRY SEMINAR***

Guest Speaker: Gerson Petronilho
Universidade Federal de Sao Carlos

Date: Monday, July 16, 2018

Time: 1:30 PM

Location: 258 Hurley Hall

***Reception afterward in 257
Hurley Hall (Math Lounge)***

Lecture Title:

**About lower bounds on the radius of spatial analyticity for the
Camassa-Holm equation on the line**

Abstract

Using estimates in Sobolev spaces we prove that the solution to the Cauchy problem for the Camassa-Holm equation on the line with analytic initial data $u_0(x)$ and satisfying the McKean condition, that is the quantity $m_0(x) = (1 - \partial_x^2)u_0(x)$ does not change sign, is analytic in the spatial variable for all time. Furthermore, we obtain explicit lower bounds for the radius of spatial analyticity $r(t)$ given by $r(t) \geq A^{-1}(1 + C_1 Bt)^{-1} \exp\{-C_0 \|u_0\|_{H^1} t\}$, where A, B, C_1 and C_0 are suitable positive constants. The talk is based on recent work with Professor Alex Himonas.