

UCCS Mathematics

Colloquium

Thursday, January 27th, 2011

UC 307

12:30 pm – 1:30 pm

(Refreshments at 12:15pm)

Christopher Wade Curtis

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**On the Evolution of Perturbations to the Solutions of the
KP Equation using the Benney-Luke Equation**

Abstract: The Benney-Luke equation, which arises as a long wave asymptotic approximation of water waves, contains the Kadomtsev-Petviashvili (KP) equation as a leading order maximally balanced approximation. The question analyzed is how the Benney-Luke equation modifies the so called web-solutions of the KP equation. It is found that the Benney-Luke equation introduces dispersive radiation which breaks each of the symmetric soliton like humps well away from the interaction region of the KP web solution into multi-peaked oscillating profiles. Both analytical and numerical techniques are employed for working with non-periodic, non-decaying solutions on unbounded domains.

