

MATHEMATICS DEPARTMENT
North Carolina State University

DIFFERENTIAL EQUATIONS SEMINAR

Wednesday, April 13, 2005
2:35 p.m. 330 Harrelson Hall

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Applications of analyticity in optical information processing

The implicit constraint of analyticity in optical information processing goes well beyond the well-known Kramers-Kronig dispersion relations. The analytic properties of propagating fields has influenced methods for the recovery of the phase from intensity measurements, developing superresolution techniques and more recently defined the new field of singular optics. After a brief introduction to this background and to these topics, we discuss exploiting analyticity to develop methods for solving the inverse scattering and inverse synthesis problems. These techniques, based on nonlinear filtering and the concept of minimum phase, are applied to real data with some success.

Graduate students are invited to attend.

For questions, comments, and offers to talk, contact Kris Jenssen, hkjensse@math.ncsu.edu.
Please visit the DE Seminar web page at www.math.ncsu.edu/seminars.html.