Introduction to the Theory of Nonlinear Waves

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In this course I will describe basic principles of the theory of nonlinear waves, including theory of weak turbulence.

Program

5. Nonlinear Schrodinger equation and systems of such equations.
8. Self-focusing in two dimensions.
9. Other examples of wave collapses.
11. Statistical description of nonlinear wave fields. Wyld’s diagram technique.
15. Theory of optical turbulence.

Prerequisites: Math 252, Math 424 or 456.

Textbooks: there are no textbooks.
Some useful information is contained in the monographs: