

Tentative plan for the next lectures (week 3, 4)

- General construction of expansion in an orthonormal system.
- Legendre polynomials
- Chebyshev polynomials
- Hermite functions
- Expansion: in eigenfunctions of simplest Sturm-Liouville operators.
- Another application: Isoperimetric problem.

Afterward I'll speak about Discrete Fourier transform including the Fast Fourier transform being as close to the textbook as possible.