

- First-order PDEs, linear and quasi-linear PDEs
- Phase plane analysis, Burgers equation, Hamilton-Jacobi eq.
- Potential eq., Green functions, existence of solutions of Dirichlet's prob., harmonic functions. maximal principle, existence of slns to Neumann's prob.
- Heat eq., fundamental solutions
- Wave eq., initial and boundary conditions, well-posedness. Sturm-Liouville's prob., energy functional, uniqueness and stability of slns.
- Distributions, Sobolev embedding thm.