

Section 1.5. Well-Posed Problems

Note. We now give a single definition. The motivation for this definition is to model physical problems with PDEs.

Definition. A PDE along with data (i.e., initial conditions or boundary conditions) forms a *well-posed problem* if

1. there exists a solution,
2. the solution is unique,
3. the solution depends in a stable manner on the data (the initial conditions or boundary conditions). This is also called *continuous dependence* on data.

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