



### Content:

One main theme is elliptic partial differential equation, in particular, equation of constant mean curvature. It is a very interesting subject. It is known that there are two kind of solutions for it.

One is a small solution, which is stable one, and another is a large solution which is unstable.

It is an important problem if there is third solution or not under suitable conditions.

Another topic is hyperbolic systems of conservation laws, for example, Burgers' equation. It is well-known that there shall be discontinuous solution. But non-linearity prevents one from applying modern mathematical techniques such as distribution solution. So one needs to study discontinuity with a direct method, like measure theoretic notion.

At present, it has a solution under very restrictive condition so it will be interesting to consider more weak condition which assure an existence of solution.

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