Area of interest :

- Finite element based model order reduction technique using balance truncation algorithm.
- Finite element modelling of Transmission line.
- Analysis of Conductor Galloping and Stability analysis of transmission line galloping
- Analytical modelling of transmission line using FEM and model order reduction.

Research Plans

Bundle Conductor

High voltage transmission lines (greater than 230 kV) are usually transmitted through bundle conductors and spacer damper are employed to protect the lines from vibrations. The placement of the spacer dampers on the conductor is however based on rule of thumb. Therefore, it will be worthwhile to develop analytical models to predict the response of bundle conductors to determine optimal locations for the spacer dampers.

Galloping

Ice accretion on transmission lines in blend with substantial wind causes conductor galloping. Inflexible and adaptable interphase spacers have been utilized to control galloping.

The set up models on conductor galloping are for the most part in view of experimental information. There is no expository model that considers the coupling between the conductor and interphase spacers. An improvement of such a model will be useful for a more exact control of conductor running.

Dead-end spans

Deadlock towers are used when transmission lines changes direction. These towers utilize horizontal insulators and can oppose unbalance load due to conductor strain and weight.

The span between deadlock towers is called dead end span. Up to this point there is no diagnostic model for dead end span. The vibration insurance for dead end span is accomplished by including additional dampers. One noteworthy extension of this work will be to build up a analytical model for dead end span by including the coupling amongst insulators and conductor.