



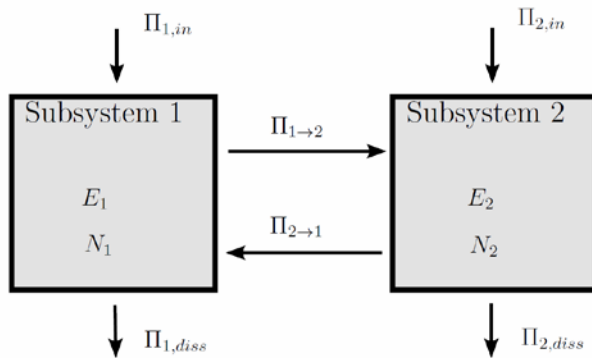
Software Lab:

Modeling: ★★☆☆☆
 Mathematics: ★★☆☆☆
 Programming: ★★☆☆☆

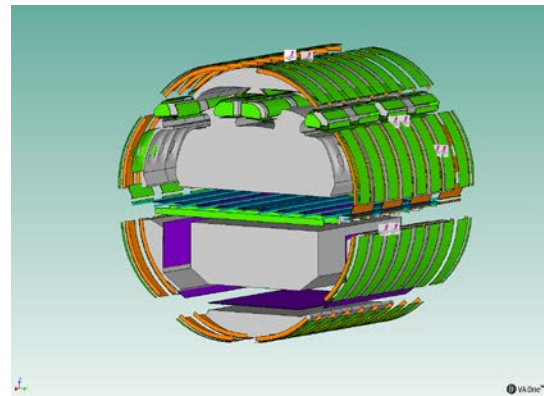
An application for Statistical Energy Analysis (SEA) in Python™

Setting

Statistical Energy Analysis is an Energy Method for the high frequency domain. It is used e.g. in automotive and aerospace industries to predict sound transmission. In Statistical Energy Analysis a structure is divided into subsystems, which store and share vibrational energy. The Method can be used without detailed knowledge of the examined structure and demands low computational effort.



Energy Flux between two adjacent Subsystems



SEA Model of a fuselage in commercial code VA One™

Task

Create SEA code in Python™ that comprehends the following:

- Implementation of the SEA core
- Junctions between various types of Subsystems (Plate, Beam, Cavity...)
- Graphical UI

Supervisors

Christian Weineisen M.Sc.
 Dr.-Ing. Martin Buchschmid

References

Lyon, Richard H. ; DeJong, Richard G.: Theory and Application of Statistical Energy Analysis. Butterworth-Heinemann, 1995

Cremer, L. ; Heckel, M. ; Petersson, B. A. T.: Structure Borne Sound. Springer Verlag, 2005