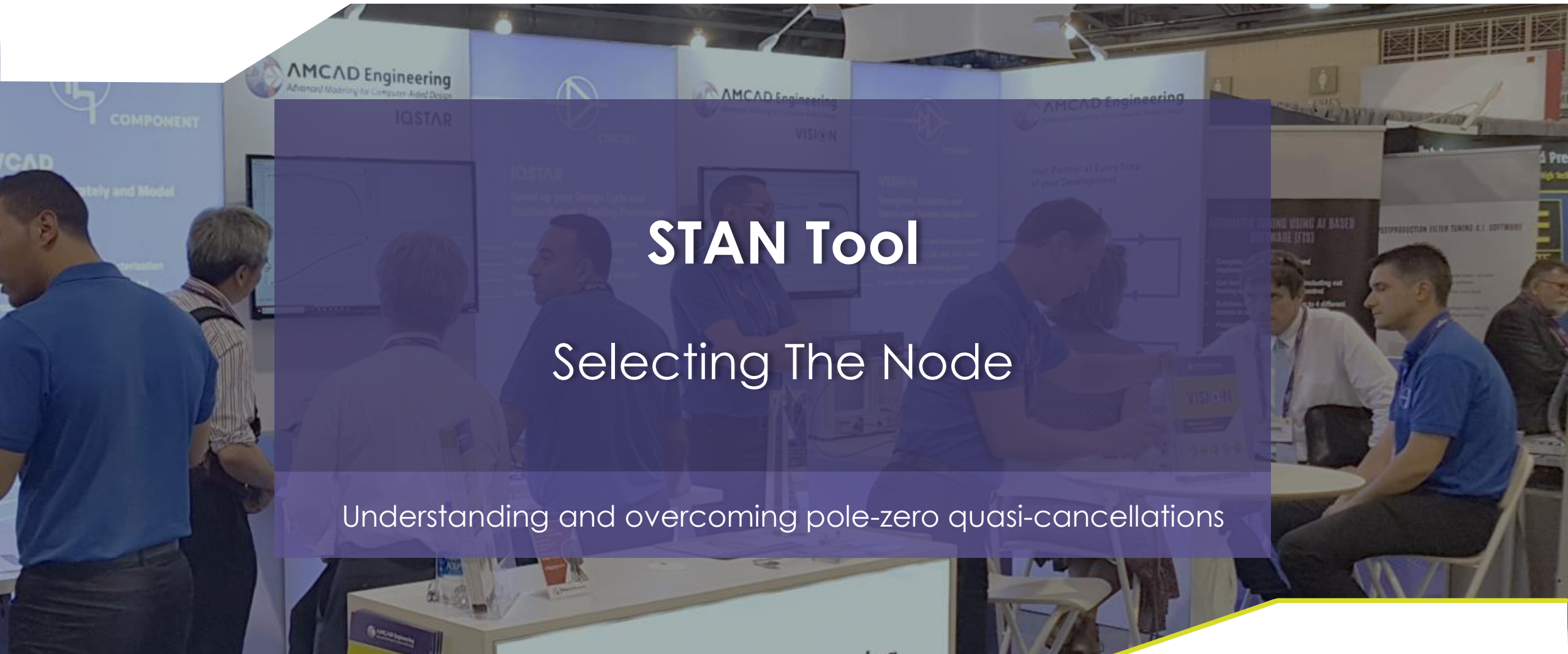


Application Note



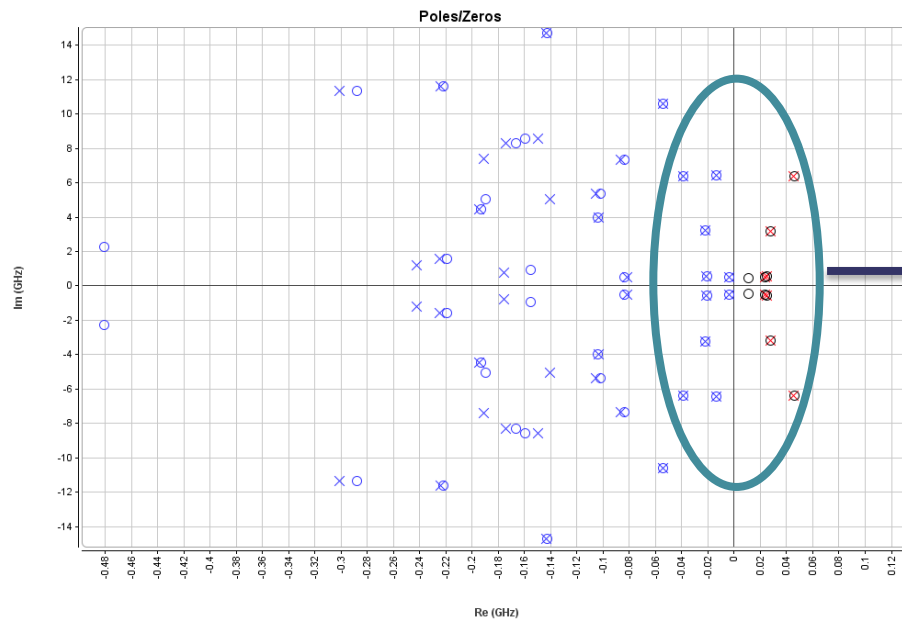
STAN Tool

Selecting The Node

Understanding and overcoming pole-zero quasi-cancellations

Selecting the Node

Sometimes the result of an identification provides a pole-zero map in which couples of poles and zeros are located virtually on the same position:



These are called:
pole-zero quasi-cancellations

A key question is raised in view of such a plot: **if quasi-cancellations lay on the Right Half Plane, can I always deduce that the circuit is unstable?**

Selecting the Node

This application note tries to answer this question providing the fundamentals to understand the origin of pole-zero quasi-cancellations and the tips to get a reliable analysis that unambiguously decides on the stability/instability of the circuit in the presence of quasi-cancellations.

We will see how an appropriate selection of the analysis node can help when dealing with these quasi-cancellations.

Document Outline

- 1 – Basic theory: Effect of poles and zeros on the transfer function
- 2 – Two origins for the quasi-cancellations in a practical transfer function
 - 2.1 – Physical quasi-cancellations
 - 2.2 – Numerical quasi-cancellations
- 3 – How to distinguish between physical and numerical quasi-cancellations
 - 3.1 – Narrow bandwidth identification
 - 3.2 – Parametric analysis
 - 3.3 – Analyses at multiples nodes
- 4 – Selecting appropriate nodes for the analysis

You want to learn more ?

If you want to get more details

[click here](#)