

Re: Cuk converter bizzare control loop

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"ChrisGibboGibson" <chrisgibbogibson@aol.com> wrote in message
news:20041207193848.08355.00001605@mb-m04.aol.com...

> *"robert lafrance" wrote:*

>

>> *Right off the bat I will tell you this is homework – sorta. I got the thing
>> running pretty much ok. Used the old virtual decade box and it looks about
>> right. Now I just have to go back and analytically justify the loop that
>> works. Was supposed to finish this last problem in Mathcad, but Switchercad
>> works so nice.*

>>

>> *With the thing running I see when I jerk the bus up and down the converter
>> kinda does opposite what I would expect. When I step it up to 550v from
>> 450v the output actually goes down before catching itself and stabilizing.*

[to OP]

That is prima facie evidence of the right half plane zero. So don't let anybody tell you it is not there. It is, and this is a well known fact.

>> *I expect this is probably a characteristic of the species. This version
>> just uses output inductor in series with 10 ohm load. The problem is to get
>> it stable at 60Hz out. I'm just running along at DC out to satisfy my own
>> curiosity.*

>>

>> *Would like to hear a comment on the control loop from someone who has
>> played with this animal.*

[to OP]

I used a convertor with the same response to convey signals at frequencies approaching a small submultiple of the switching frequency. This used a compensating zero in the right half plane.

> *Look up "right half plane zero". As you suspect it is a "feature* of the
> species. It occurs in continuous mode mode only.*

So far, so good.

> *Run it in discontinuous mode*

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- > *(complete energy transfer) and the problem will go away. Despite what you might*
- > *read in some texts there's piss all you can do about it other than to swamp it*